

SHORTIA

NEWSLETTER OF THE

WESTERN CAROLINA BOTANICAL CLUB



Shortia galacifolia

Oconee Bells

Spring 2020

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President	Gayle Mercurio
Vice-President	Joe Standaert
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MEMBER NEWS

Field Trip Cancellations: Occasionally, field trips must be canceled or changed either for weather conditions or other reasons such as road closings. Such changes are sent out by email to all members by 7 AM the day of the field trip. If you do not have email access, please call the leader, co-leader, or recorder (whose phone numbers are listed on the schedule) to be sure that the walk is going to go as planned. Indoor programs are canceled when Henderson County Schools are closed (see <http://www.hendersoncountypublicschoolsnc.org>) but NOT necessarily canceled because of the delayed opening.

For any change of address, email or telephone number, please send an email to wcbotanicalclub@gmail.com.

Our webpage is located at <http://wcbotanicalclub.org>

PRESIDENT'S MESSAGE

Gayle Mercurio

Linnaeus

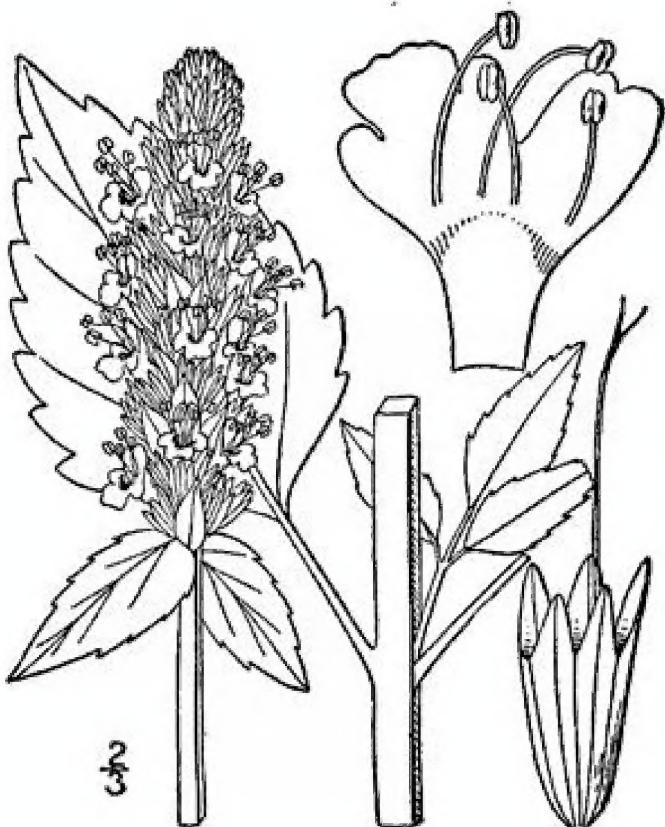
Mary Standaert, our WCBC secretary, gave us a very interesting talk during our winter lecture series about Carl Linnaeus and his outstanding accomplishments. Carl Linnaeus was a person of many pursuits who, among other notable things, wanted to organize all plants, animals and minerals in the entire natural world. Coincidentally, soon after Mary's presentation, the Greater Asheville Science For All Book Club chose "What Linnaeus Saw" by Karen Magnusom Beil as the book for us to read. I thought I had already learned quite a lot about this man. Never presume. I did my duty, I read the book. It was extremely enjoyable, hilarious at times and enlightening. It opened my mind to the world he lived in, the influences and the determination he had throughout his life to fulfill his dream to develop a simple and meaningful method to name and categorize the natural world that all scientists could use. Little did he realize how big the scope of his dream would be. In 1735, he had 569 species to be categorized. By 1758, he knew of more than 4000 species that needed categorization and realized there were going to be many, many more.

The book flows like water through his life. Not only do you embrace his accomplishments, but you learn about the struggles and restrictions placed on him by society, science, religion and beliefs of his century. It sets you in his world and explains how it functioned and how he was able to wiggle around the restrictions of the time. The influences and propriety of his time ruled so much of what he could say and do. It's an interesting, compelling book of stories that are humorous and amazing. It's filled with illustrations of drawings and pictures of his work and time. And like Mary pointed out in her presentation, every picture of Linnaeus shows him holding his favorite Arctic twin bell flower, *Linnaeus borealis*.

Missing Plants

We have plants in our database that we've never recorded. Maybe if we knew what they looked like we could find them.

Yellow Giant-hyssop (*Agastache nepetoides*)



USDA-NRCS PLANTS Database Britton, N.L., and A. Brown.
1913 pnd_agne2_001_lvd

Richard and Teresa Ware rtw_agastache_nepetoides August

LEAVES: Simple, Opposite

FLOWER: Summer/Fall; Flowers yellowish-green with stamens that extend outside the corolla; Bracts in the flower spike are green.

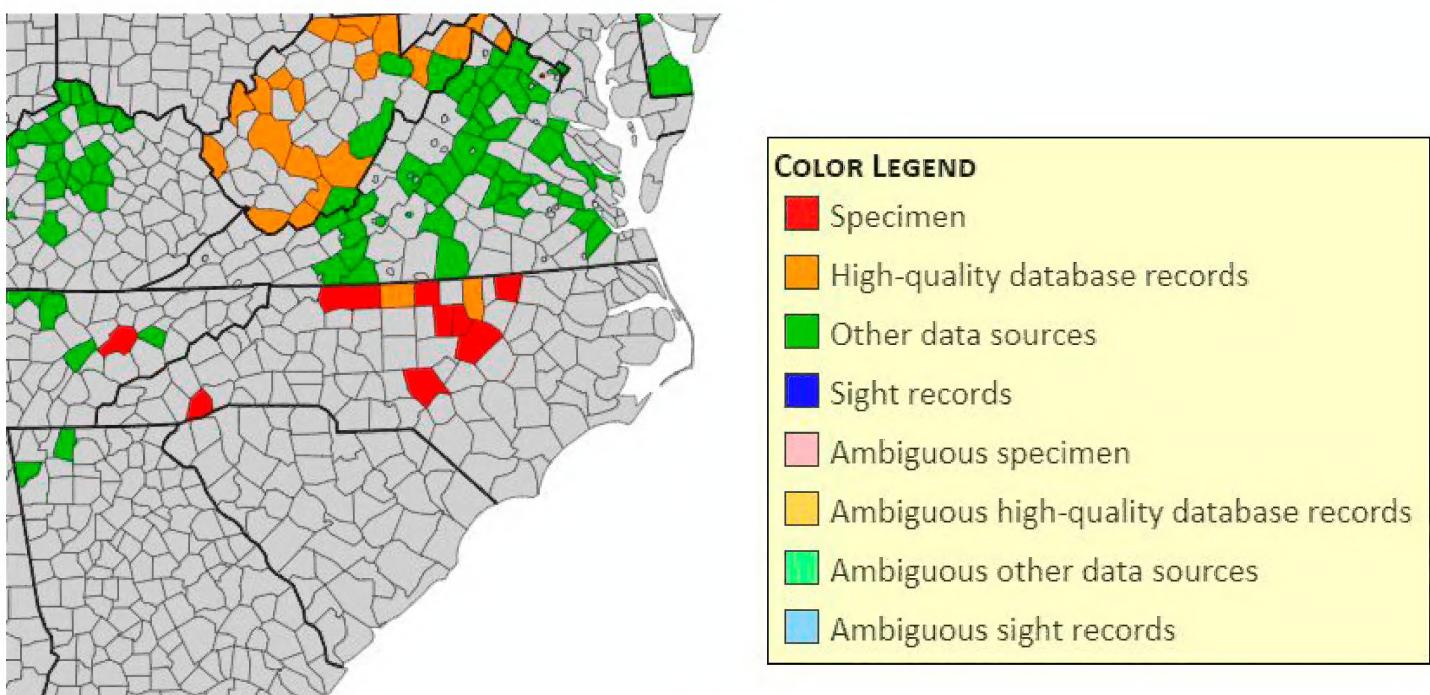
FRUIT: Summer/Fall

According to Vascular Plants of North Carolina:

The rarity of the species can be explained by its limitation to high pH soil, derived from mafic or calcareous rocks such as gabbro, diabase, amphibolite, or limestone. However, it can occur on very rich soil or on drier soil, but almost always under a hardwood canopy. Mostly it is found in Basic Mesic Forest and Basic Oak-Hickory Forest communities, but it can be found along moist or rich openings or edges of such forests.

Blooms from July to September, and fruits from September to October.

This is a very tall, robust herb, often growing to 5-6' high and occasionally even taller. It has a square stem like about all other in the family, usually with a few upright branches in the upper portions. It has numerous opposite leaves that are ovate to almost triangular, with a short petiole, and with obvious serrations; each leaf is about 3-3.5" long and about 2" wide. At the top of the stem and each branch is the flower cluster of about 4-5" long, a very dense "spike" of light yellow to creamy yellow flowers, each only about 1/5" long. Even though the flower color does not stand out at much distance, owing to the green color of the calyx and many bracts in the cluster "swamping out" the corolla color, the erect "candles" at the tips of branches are quite noticeable, especially where several to many plants grow together. The other species in the genus in NC -- *A. scrophulariifolia* -- is quite similar and should only be safely identified by range or when in bloom; it has pink or light pink to whitish flowers, and is essentially limited to the mountains. Sadly, few biologists have seen this spectacular species in the state. Note: the red county in the lower west is Transylvania County.



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Vascular Plants of North Carolina, auth1.dpr.ncparks.gov/flora/plant_list.php.

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What's in a Name – *Tradescantia*

by Penny Longhurst

The best patch of *Tradescantia* (Spiderwort) that I can recall ever seeing is on Glassy Mountain. Every year it's there - big, bright blue, beautiful, and hairy, making it an easy one to identify as Hairy Spiderwort (*Tradescantia hirsuticaulis*). Ken even included a picture of it in his 2019 Holiday Fest movie.

The genus *Tradescantia* consists of 70-75 species named after John Tradescant the Elder, an English gardener who propagated botanical specimens sent to him from the Americas, as well as throughout the known world. Weakley lists 10 native *Tradescantia* species identified in the Southern and Mid-Atlantic States. Ironically the only Spiderwort included in Linnaeus' *Species Plantarum*, *Tradescantia virginiana*, doesn't grow here in the mountains. Nor does *Symphyotrichum tradescantii* (Shore Aster), also named by Linnaeus in Tradescant's honor, which is found only in the north-eastern states and eastern Canada.

188 HEXANDRIA MONOGYNIA.

TRADESCANTIA

virginiana. 1. **TRADESCANTIA.** *Hort. cliff.* 127. *Hort. spf.* 73.
Grat. 36. *Roy. lugd.* 37.
Ephemerum phalangoides tripetalum non- repens virginianum gramineum. *Morif. hist.* 3. p. 606. f. 15.
f. 2. f. 4.
Allium f. *Moly virginianum*. *Bauh. pip.* 506.
Habitat in Virginia. 2.

tradescanti. 24. **ASTER** foliis lanceolato-lanceolatis medio serratis,
pedunculis foliatis, caule racemoso, calycibus er-
ctis. *Hort. cliff.* 408. *Hort. spf.* 262. * *Roy. lugd.*
167.
Aster virginianus ramosissimus serotinus, parvis floribus albis tradescanti. *Morif. hist.* 3. p. 121.
Habitat in Virginia. 25. A.



John Tradescant was probably born around 1570 about 140 miles north east of London, in the county of Suffolk. In 1607 he married Elizabeth Day, and their only child, John Tradescant the Younger was born the following year. Little is known of Tradescant Sr.'s early years, yet at some point he acquired sufficient gardening credentials to be employed by aristocrats, kings, and queens. Before the 1600's, ornamental gardens were not a priority; emphasis was placed on acquiring new high yielding fruit and vegetable plants. But in 1610 Tradescant was hired to plan and lay out the gardens at Hatfield, the new home of Sir Robert Cecil, 1st Earl of Salisbury, as well as at his other properties. So off he went searching for rare and unusual plants. He was sent to continental Europe many times to collect trees to line the driveway to Hatfield, fruit trees for the orchards, plants for the kitchen gardens, and flowers for the borders. The bills from his shopping sprees are still in the archives at Hatfield House. On one occasion 400 sycamore trees were sent from Holland to Hatfield! In addition, Tradescant was always on the lookout for anything strange, "curiosities" of plant, animal, or mineral form. This was a habit that would continue for his lifetime, as you will see.

After Cecil's death in 1612, Tradescant worked for Edward, Lord Wooton in Canterbury and then George Villiers, Duke of Buckinghamshire, who also liked to collect strange objects. After Villier's assassination in 1628, he was employed by King Charles I to create gardens for his French wife, Queen Henrietta Maria (The "Rose and Lily Queen"). Tradescant persuaded ship's captains and sea merchants to bring him plants and strange specimens from around the world, as well as collecting on his own within continental Europe. Then in the late 1620's Tradescant acquired property in Lambeth, south-west of the city of London. There he propagated plants for sale and created his *Musaeum Tradescantianum* (known as the "Ark"), where he charged sixpence admission to see his thousands of curiosities. These included a stuffed Dodo from the island of Mauritius, the hand of a mermaid, a piece of wood from the cross of Christ, and Chief Powhatan's mantle.

John Tradescant the Younger learned his gardening skills from his father. In 1628 he married Jane Hurte. After her death in 1635 John and their two children remained at Lambeth living with his father. However, in 1637 he set off for Jamestown, Virginia, in search of oddities and new and unusual plants. Sadly his father died in 1638, shortly before his return. Some biographers think Tradescant returned to Virginia in 1642 and 1654. However, Potter (2008) maintains that this is unlikely because there is no mention of these trips in the records of his patrons and contemporaries.

Several plants of North American origin had been introduced into England before Tradescant's journey, including Shagbark Hickory (*Carya ovata*), Black Walnut (*Juglans nigra*), Red Mulberry (*Morus rubra*), Evening Primrose (*Oenothera biennis*), Virginia Creeper (*Parthenocissus quinquefolia*), Staghorn Sumac (*Rhus hirta*), Northern White Cedar (*Thuja occidentalis*), and Adam's Needle (*Yucca gloriosa*). The *Plantarum in Horto*, or catalog of the plants cultivated by the Tradescants before 1634, can be found in Appendix II in the book by Leith-Ross (1984), but I recognized only the following native North American herbs: Daisy Fleabane (*Erigeron annuus*), Wild Geranium (*Geranium maculatum*), Self Heal (*Prunella vulgaris*), Green-headed Coneflower (*Rudbeckia laciniata*), Canada Goldenrod (*Solidago canadensis*), Foamflower (*Tiarella cordifolia*), either Poison Ivy or Poison Oak (*Rhus toxicodendron*) [WHY?!], .and, of course, Virginia Spiderwort (*Tradescantia virginiana*). Clearly they did not think much of the idea of using North American flowers in English ornamental gardens!

No diaries or notes describe where John Tradescant the Younger went in Virginia, but it was probably confined to the area around the James River. Although he was reported to have returned with "a couple of hundred plants hitherto unknown to our world", only 11 plants are definitively attributed to Tradescant: Red Maple (*Acer rubrum*), Northern Maidenhair Fern (*Adiantum pedatum*), Round-lobed Hepatica (*Anemone americana*), Red Columbine (*Aquilegia Canadensis*), Spikenard (*Aralia racemose*), Evening Trumpetflower (*Gelsemium sempervirens*), Tulip Tree (*Liriodendron tulipifera*), American Sycamore (*Platanus occidentalis*), Purple Pitcher Plant (*Sarracenia purpurea*), Bladderpod (*Staphylea trifolia*), and Bald Cypress (*Taxodium distichum*). The London Planetree (*Platanus x acerifolia*), a cross between the American Sycamore (*P. occidentalis*) and Oriental Planetree (*P. orientalis*), may have been inadvertently created on the Tradescant's property, since both parent trees were cultivated there. The Planetree hybrid was commonly planted in cities due to its reputed tolerance for urban pollution.

After his return from Virginia in 1638, Tradescant assumed his father's position as head gardener at the Queen's palace, and in October of that year married Hester Pooke. However, civil war broke out in 1642 and the queen left the country. Then King Charles I was executed in 1649. During this turmoil Tradescant continued to cultivate plants and run his museum in Lambeth. In 1650, the Tradescants met Elias Ashmole, a lawyer with an interest in the sciences. Ashmole was instrumental in preparing the catalog of the oddities and plants at Lambeth. He paid to have *Musaeum Tradescantianum* published in 1656. It can be found in Appendix

III in Leith-Ross (1984).

Tradescant's only son, John, died in 1652, leaving his father with the question of who should inherit the museum, and in 1659 he signed a binding deed of gift leaving the collection to Ashmole after his and Hester's deaths. Apparently regretting this decision, later Tradescant wrote a will leaving all his property to Hester and after her death to Oxford or Cambridge University. When he died in 1662, Ashmole took Hester to court to acquire the collection and won the case. To add insult to injury, he bought the house next door, moved the collection to his own property, and became a thoroughly antagonistic neighbor. In 1678 Hester died by drowning. She was buried with the rest of the family in an elaborate memorial tomb she had erected at the church of St Mary-at-Lambeth, now the "Garden Museum". Shortly thereafter Ashmole began negotiations with Oxford University to build a new museum to house "his" collection, and the Ashmolean Museum was opened in 1683. Over time many items in the collection were destroyed or distributed to other museums in Oxford. The old Ashmolean Museum now houses the History of Science Museum. A few of the rarities that remain together, including Powhatan's mantle, can be found in a gallery at the new Ashmolean Museum. Books and manuscripts are at the Bodleian Library, and the remaining head, a foot, and some skin of the Dodo can be found in the Oxford University Museum of Natural History.

By 1893 the adjoining houses in Lambeth occupied by the Tradescants and Ashmole had been demolished and terraced housing and shops now cover the entire area. The only remaining memory of the pioneering collectors and gardeners who lived there is found in the name, Tradescant Road, which is located in the vicinity of their former property.

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Cardamine flagilifera or Cardamine clematitis?

By Lucy Prim

What a strange spring this has turned out to be, all of us living in “social isolation” so we won’t catch the dreaded Coronavirus. Instead of driving off every Monday and Friday to see the springtime flowers, most of us are staying home. As I write this, happy memories of other spring times flood my mind, memories of springs when we walked down narrow woodland paths, not worrying about being close together, not giving one thought to viruses and face masks and shortages of respirators. And I think about our Botany Club friends who are no longer with us, Millie, Alan, Wes and Erna. What would they have said about this strange state of affairs I wonder? I can just see them, smiling and shaking their heads in astonishment.

When we used to gather at Pearson Falls and walk with Millie, one of the flowers she pointed out to us was *Cardamine clematitis*. I learned that little plant early on in my time with the Botany Club and was quite sure I could identify it with no trouble. But, as I have learned over the years, never be too confident! There is another *Cardamine* which looks quite similar and which is not even mentioned in Dick Smith’s book, “Wildflowers of the Southern Mountains.” It is *Cardamine flagilifera*. According to the wonderful website, Vascular Plants of North Carolina, this plant was first named in 1979, which explains why it is not even mentioned in some of our plant identification books.

I have made a little page of the two *Cardamines* showing their differences. Unlike some plants that look alike, these two can be easily told apart. All we need to do is note the number of leaflets on a typical leaf. We won’t need to get out our magnifying glasses. In fact, we won’t even need to bend over!

Editor's Note:

The club has recorded these plants in the following locations:

Cardamine clematitis

Cardamine flagilifera

Pearson's Falls

Estatee Trail

Station Cove Falls

Davidson River - Sycamore Flats

Pacolet Falls

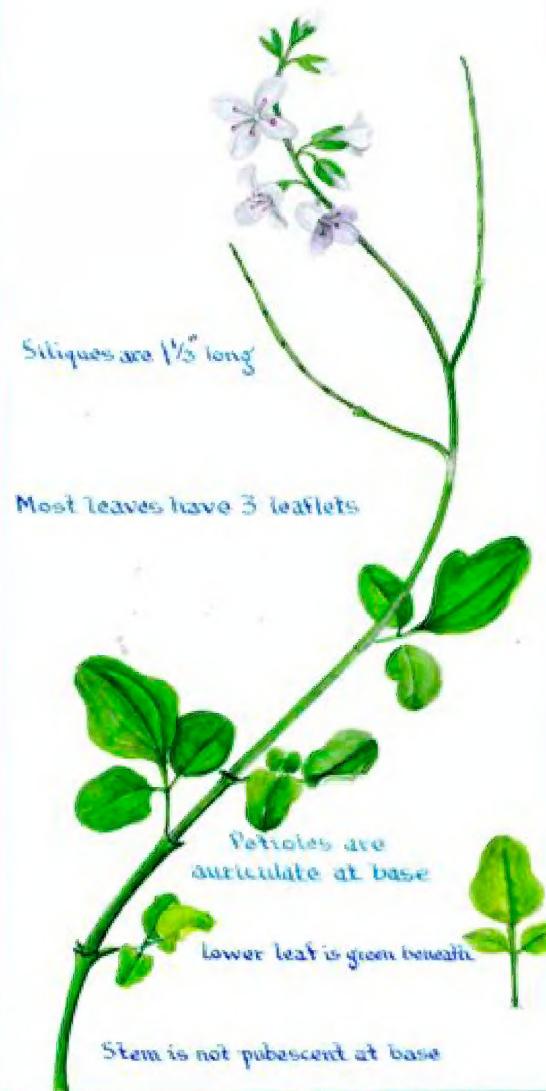
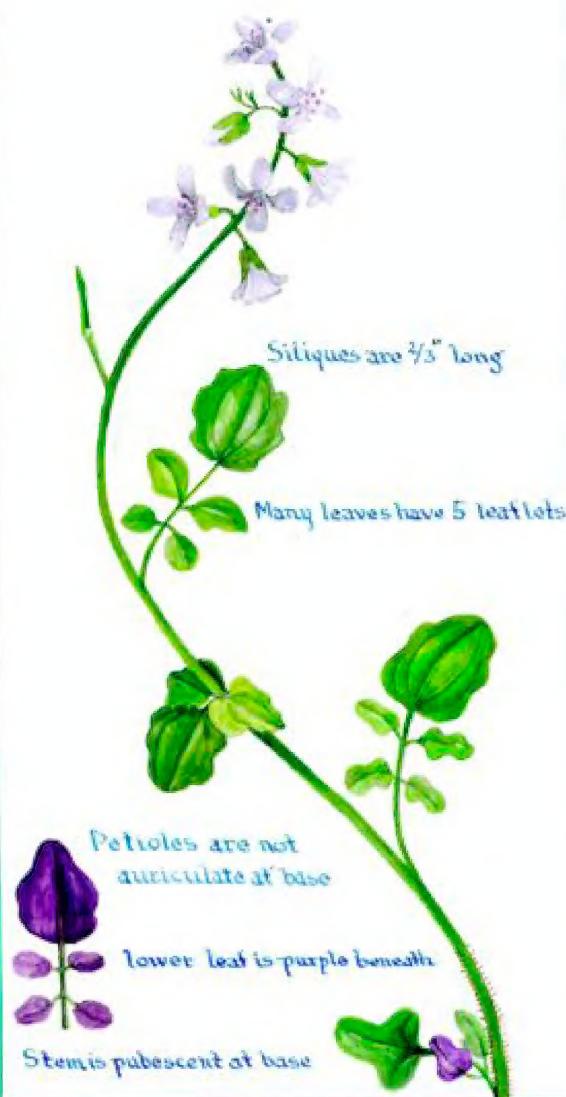
Rivercliff Farm

South Mills River / Bradley Creek

Green River Trail

Which
Cardamine?

flagellifera or *clematitis*



Plants We Love to Hate! Pokeweed (*Phytolacca americana*)

by Penny Longhurst

I used to really dislike Pokeweed. When we first moved to Transylvania County there were many plants growing around my house. I almost needed a saw to cut the stems and a back-hoe to dig out their humongous tap roots! I've mellowed a little since that time and can now appreciate the rich colors of the stems and fruits and the intricacies of the flowers. I also have way fewer plants!

According to Linnaeus, Pokeweed was first referenced by Leonard Plunkett, an English botanist who had a large herbarium that included plants sent from Virginia by John Bannister, and who published several books between 1691 and 1705. Subsequently Johann Jacob Dillenius, a German Professor of Botany at Oxford, included it in his 1732 *Hortus Elthamensis*, a catalogue of the rare plants grown by William Sherard at his estate in Eltham, London. It was also included in Gronovius's *Flora Virginica*, as well as Linnaeus's *Hortus Cliffortianus*. It's strange to think that Europeans actually sought out and cultivated Pokeweed! Note that it still has the same botanical name that Linnaeus originally gave it in 1753, *Phytolacca americana*. Worldwide there are about 100 different species in the Pokeweed family.



The genus name, *Phytolacca*, is derived from “*phyton*”, meaning plant, and “*lacca*”, referring to the red dye which can be derived from the plant. Pokeweed is a native perennial (or weed) which can grow up to 8 feet in height. All parts of the plant are poisonous. However, young stems and leaves can be eaten if cooked properly, and Poke salad festivals are held annually in several small communities in southern Appalachia. One of Pokeweed's most obvious characteristics is its large dark purple stem. The inflorescence consists of a long raceme with numerous small white/pink flowers followed by green and then dark purple/black berries. These berries are an important food source for birds and mammals that are unaffected by its toxins, and help spread the plant hither and thither.

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Voices From the Past

Shortia 1982 Vol.IV No. 1

All Those Violets!

Primrose-leaved, long spurred, halberd-leaved, birdfoot, Canada, sweet white, smooth yellow, marsh blue---to the person who loves to tramp the coves and hills and fields and mountaintops, these are adjectives of spring, recognized as the descriptive common names of violets. Some violet species are abundant, some rare, some seem like tiny pansies, and some sport leaves with weird shapes, but all seem to have great appeal for spring wildflower hunters.

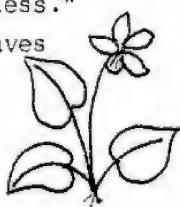
Our WNC mountains provide habitats for a wide variety of these little members of the genus *Viola*. A checklist of spring flowers of the Smokies lists 31 species. Maps in the Manual of the Vascular Flora of the Carolinas spot 17 species for Henderson County and, if updated, would list at least 19, so there's plenty of challenge!

Before considering differences which help identify a violet, let's look at the likenesses which lump these flowers together. Violas typically have 5 petals: 2 upper, 2 lateral, 1 lower, just like a pansy, which is really a jumbo-sized violet. Lateral petals are usually bearded, lower petals usually veined and extending back to form a spur. Sepals and stamens number 5 each, and the pistil is clublike.

Violets hide a secret in their foliage. Deep under the leaves at the base of the plant, developing after the showy flowers finish blooming, are strange flowers that never open and are self-pollinated and seldom seen. Botanists describe these flower types with wonderful-sounding terms: chasmogamous flowers are the familiar, open, colorful, conspicuous ones, cleistogamous are the closed, secret ones. Only birdfoot violet of our WNC species is without the latter. "There is one in every crowd!"

A big step in identifying violet species is noting whether the plant is "stemmed" or "stemless."

Stemless plants have leaves and flowers arising on separate stalks.



Stemmed plants have leaves and flowers attached to an erect main stem.



Adding flower color to this, a good book, such as Newcomb's Wildflower Guide, identification of most species is fairly easy. Charting these two features for the Henderson County species helps, too. (See chart at end.)

How quickly all the factual material on identification can be tossed aside in that wonderful moment in early spring when we stoop to peer closely into the first cheery faces of roundleaved violets, their sunny spring yellow contrasting so strikingly against the heavy winter brown of the forest floor! During blooming time, their rounded leaves are barely beginning to unfold, but by summer they grow to surprising size, to $4\frac{1}{2}$ ", flattening out along the ground. We can momentarily ignore bearding and hairs or pistils and stamens when admiring the pristine beauty of the sweet white violet, which often stands "with its feet wet" as it grows in moist or wet places in deep shade. We need no vast technical vocabulary to appreciate fully the rich lavender of the birdfoot violet or the lush foliage and tall-stemmed, dark-centered flower of the marsh violet, and anyone

can revel in a patch of sunny meadow purpled with common violets, set off by yellow mustard and dandelions.

And incidentally, violets are delicious to eat! Both flowers and leaves lend colorful excitement to a toss salad, and tender leaves cooked like spinach are loaded with vitamins. A wide variety of violet recipes can be found in books on edible wild plants. Try violet jello!*

With enough species to challenge but not enough to overwhelm, identifying our Henderson County violets is one of spring's most delightful rewards, but isn't the greatest reward just being in places where violets grow, from open fields to shaded streamside, deep valleys to high mountains, rich woods to scrubby "waste" places?

Get ready! The violets are coming!

*** Violet jello**

2 envelopes gelatin
1 cup cold water
2/3 cup sugar
1/4 tsp. salt
1 cup boiling water
1/2 cup lemon juice
1 cup violet flowers,
blended with 1 cup
cold water

Recipe from Eating Wild,
a publication of the Massachusetts
Audubon Society 1971.

Sprinkle gelatin onto cold water. Add sugar, salt, and boiling water; stir till dissolved. Add lemon juice and COOL till at least room temperature or cooler. (Heat kills flavor and color of violets.)

Add violets. Pour into mold or individual bowls. Chill till set. Sprinkle several flowers on top before serving.

Henderson County Violets

White, stemmed

V. canadensis--Canada
V. rafinesquii--Field pansy
(*kitaibeliana*)
(sometimes bluish)
V. striata-----Cream

White, stemless

V. blanda-----
Sweet white
V. pallens--Pale
V. primulifolia--
Primrose-leaved

Yellow, stemmed

V. hastata--
Halberd-leaved
V. pensylvanica--
Smooth yellow
V. tripartita----
3-part leaved

Yellow, stemless

V. rotundifolia--
round-leaved

Blue-violet, stemmed

V. rostrata-----
Long-spurred
V. rafinesquii--
Field pansy
(sometimes white)

Blue-violet stemless

V. cucullata--Marsh
V. emarginata--
Triangle-leaved
V. fimbriatula--
Northern downy
V. hirsutula--
Southern wood
V. palmata-----
Early blue
V. papilionacea--
Common blue
V. pedata--Birdfoot
V. triloba--Trilobed

B. Hallowell

SHORTIA

A quarterly publication of the Western Carolina Botanical Club

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Vol. XXXII Vol. 1

Editor: Ken Borgfeldt

1Q, 2020

The mission of the Club is to identify and study native plants and their habitats and to advocate the protection of biodiversity in our natural world. Membership is open to all. Individual/family memberships are \$15. New members joining from the period July 1-December 31 pay \$8. All memberships are renewable on January first of each year. Send dues to Western Carolina Botanical Club, 351 Cheestoonaya Way, Brevard, NC 28712

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Summer 2020

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For any change of address, email or telephone number, please send an email to wcbotanicalclub@gmail.com.

Our webpage is located at <http://wcbotanicalclub.org>

NOTE: All club activities are canceled for the remainder of 2020 due to Covid-19 concerns. All full year (\$15) dues for 2020 will be applied to 2021, so memberships will be automatically renewed for 2021 (assuming there are activities in 2021).

Milkweed (*Asclepias syriaca*)

Gayle Mercurio

During the corona virus pandemic, like so many of you, I have stayed at home doing fix up things throughout the house, reading lots of books and spending time in the yard. Trees which had no leaves are now full of dark green mature leaves. The light of day has become extensively longer. Birds are bringing their fledglings to the feeders. Flowers are blooming in succession. All of nature has gone through great changes.



Milkweed Visitors

The common milkweed plants we planted last year have multiplied and changed their location from the back of the sunny garden to the front. I've been keeping a close eye on them, taking pictures and making a list of the visitors. Not many insects can feed on milkweed. It has sticky white sap which contains toxic chemicals to deter mammals and insects. The flower and nectar do not contain the toxin so nectar sucking bees, flies and butterflies can pollinate the plant without being affected. The monarch butterfly becomes toxic because the caterpillar ingests the toxic sap while eating the milkweed leaves. This provides protection from predators.



My List of Visitors for a Week

Monarch Butterfly Caterpillar (*Danaus plexippus*)

- Complete metamorphosis - eggs, larvae, pupae, adult
- Egg – laid on the underside of the milkweed leaves, take 3-8 days to develop and hatch
- Larvae (caterpillar) - sheds its skin five times to grow (five instars)
- Pupae – forms a chrysalis in which it metamorphosizes to an adult monarch butterfly. 9-14 days
- Caterpillar is black, white and gold striped with dark tentacles



Large Milkweed Bug (*Onconopeltus fasciatus*) – classified as a true bug with a black and red pattern on its back (abdomen).

- Does little damage to milkweed.
- Feeds on milkweed sap and seeds mostly but also will feed on young leaves, flowers and developing pods.
- Lays eggs in crevices between seed pods. Deposits 30 eggs a day for about a month. Eggs change from yellow to bright red or orange. The pattern may change with each of the five instars so juveniles have a different look before becoming an adult.



Jumping Spiders

- Small, fast and eats insects



Aphids

- Pests, sucks sap, large numbers will kill a plant



Asian Lady Bug

- M shape on black and white head
- Varied colors and variable number of spots
- Can bite
- Invades homes in winter – has an odor and leaves yellow spots on walls, furniture and fabric
- Harmful to dogs if they eat 20 or more



American Lady Bug

- Usually has 7 or 9 spots
- Eats garden pests
- Don't bite
- Don't congregate in large numbers
- Stay outside year round



Larvae

Praying Mantid (maybe Chinese)

- Voracious insect eaters



Small green bee (sweat bee) – flew to adjacent coreopsis at picture time

- Pollinator

Large and Small ants

- Protectors and pollinators



Red Banded Leaf Hopper (same common name for two species)

Graphocephala fennahi

- Feeds on sap of rhododendrons
- Species introduced to US in 1920



Graphocephala coccinea

- Feeds on foliage of garden vegetables
- Does not cause serious damage,
- Produces honeydew substance causing ants to care for them as they do aphids
- No control necessary

Immature Shield or Stink Bug

- Sucks sap
- 4,700 species



Kudzu bug (*Megacopta cribraria*)

- Other common names – bean plataspid, lablab bug
- Agricultural pest – eats legumes
- Less than a quarter inch with speckled brown rounded dome shape
- Seeks the warmth of a house in winter
- Prefers white surfaces like walls
- Emits a foul smelling pheromone
- Offensive odor when touched, squashed or poked
- Sucks juice from soybeans and others
- Reduces crop yield
- Reduces growth of kudzu
- Invasive species – came to northeast Georgia in 2009
- By 2012 spread to AL, FL, NC, SC, TN, VA, MD, MS and TX
- Research being carried out in southern universities including NC State University



Silver Spotted Skipper butterfly

- Pollinator
- Almost never visit yellow flowers – prefers blue, red, pink, purple and sometimes white and cream colored which makes common milkweed a favorite



Small green, gold and red flies

- Pollinators



Several species of bumble bees

- Valuable pollinators
- Pollinates many vegetables, fruits and wildflowers that cannot be pollinated by anything else
- Many species
- Native to North America



Soldier Beetle

- Important predators - feed on soft body insects, aphids and caterpillars
- Wing covers look like leather, sometimes called leatherwings
- Valuable pollinator - feed on nectar and pollen but do not harm plants



Plants We Love to Hate! Poison Ivy (*Toxicodendron radicans*)

by Penny Longhurst

OK – this is one plant that I REALLY hate! I don't recall seeing it until I moved to this area – just oblivious, I guess. But then one day I developed the dreaded PI rash and it was truly miserable! Ever since I have tried to avoid touching the plants (works about as well as “not touching the face”) and obsessively clean my hands and arms after a field trip before driving home. Unfortunately we seem to have a few walks that are covered with PI – Craven Gap and Rattlesnake Lodge trips spring to mind, and I came home from a recent Holmes scout feeling very itchy!

radicans. 6. *RHUS* foliis ternatis: foliolis petiolatis ovatis nudis integrerimis, caule radicante. *Hort. cliff.* 110. *Gren. virg.* 33. *Ray. Engdb.* 244.
Hedera trifolia canadensis. *Corn. canad.* 96. t. 97.
Barr. ic. 228.
B. *Toxicodendron amplexicaule*, foliis minoribus glabris.
Dill. cltb. 390.
γ. *Toxicodendron rectum*, foliis minoribus glabris. *Dill. cltb.* 389. t. 291. f. 375.
Habitat in Virginia, Canada. b



The 10 – 15 members of the *Toxicodendron* genus are native to the Americas and East Asia. According to Weakley, 6 different species may be found in the Southern Appalachians: *Toxicodendron pubescens* (Atlantic Poison Oak), *Toxicodendron radicans* ssp. *negundo*, *Toxicodendron radicans* ssp. *pubens*, and *Toxicodendron radicans* ssp. *radicans* (all Eastern Poison Ivy), *Toxicodendron rydbergii* (Western Poison Ivy), and *Toxicodendron vernix* (Poison Sumac). *Toxicodendron radicans* ssp. *radicans* is the most common species found here. The only other species I can remember seeing is Poison Oak at Glassy Mountain.

The name *Toxicodendron* is derived from the Greek for “poison tree” and *radicans* from the Latin, meaning “roots from the stem”, a good way to distinguish *T. radicans* ssp. *radicans* from the other *T. radicans* subspecies, as you can see in the picture above. For some inexplicable reason one of the *Toxicodendron* species was introduced into England and presumably other parts of Europe in the 1600's. Linnaeus originally included Poison Ivy in the *Rhus* genus and called it *Rhus radicans*, but the *Rhus* (Sumac) and *Toxicodendron* genera are now separate members of the *Anacardiaceae*.

(Cashew) family. A commonly used homeopathic medicine known as “*Rhus Toxicodendron*” is an extract of Poison Ivy used to treat arthritis, restless leg syndrome, and other conditions. However its efficacy has not been proven.

Poison Ivy is a low-elevation plant, growing most abundantly at elevations below about 3,500 ft. *Toxicodendron radicans* ssp. *radicans* grows as a deciduous perennial ground cover, bushy shrub, or hairy climbing vine and is considered an invasive species in North Carolina. It's a “mechanical parasite”, using large hosts to climb to better lit areas in the canopy. It also takes advantage of openings in the canopy such as occur after storms or logging to increase its growth. Its deciduous leaves are trifoliate, leading to the warning “Leaves of three let it be”. The plants are dioecious; panicles of greenish-white male and female flowers appear on separate plants. White drupes (berries) containing a single seed form after pollination and may be dispersed by birds and mammals.

All parts of *Toxicodendron* plants contain an oily sap, urushiol, which causes contact dermatitis in most people. Serious systemic allergic reactions can also occur after inhalation of smoke from burning debris containing *Toxicodendron*. Formation of urushiol is stimulated by increases in carbon dioxide. The growth of Poison Ivy seems to increase with higher temperatures and increasing carbon dioxide levels, leading to speculation that climate change will result in the plants becoming larger and more noxious. Just what we need!

Any possible encounter with Poison Ivy needs to be treated as soon as possible by washing the affected area with soap and lukewarm water or cleaning with rubbing alcohol (sound familiar?). Any reaction usually develops 12 to 48 hours after exposure and lasts two to three weeks. The rash occurs only where the urushiol has touched the skin. Once it has been washed off, no further rash will occur; the slower appearance of a rash elsewhere is due to secondary contamination before the primary site was cleaned. The fluid inside the blisters is not plant oil and will not cause a rash if they break. Wet compresses, calamine lotion, or hydrocortisone cream may reduce itching and blistering. Because urushiol can linger for years on clothing, pets, and tools, all objects that have been in contact with Poison Ivy should be washed to avoid repeat contamination. Best precaution is AVOID like the plague!

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Our North Carolina Mountain *Veratrum*s

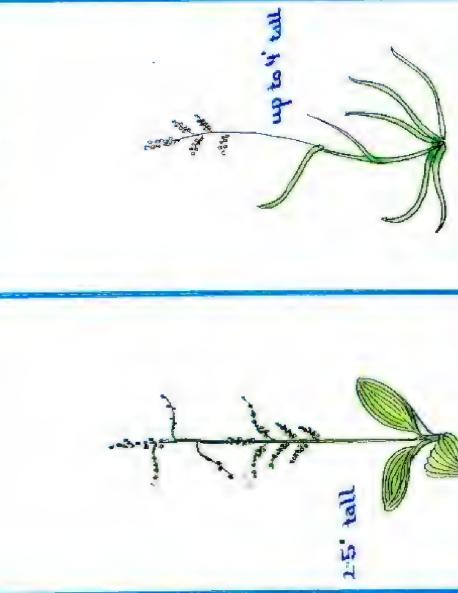
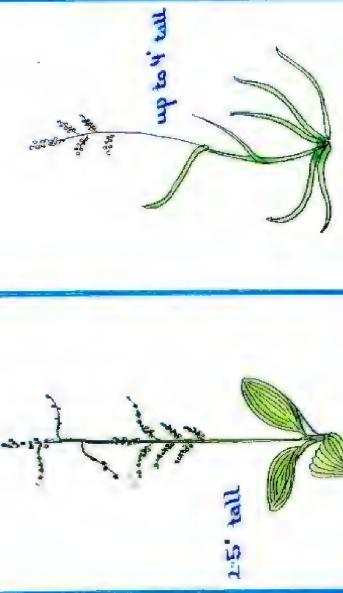
By Lucy Prim

A few years ago, in our Summer 2015 issue of Shortia, Penny wrote a wonderful article titled “Is it False Hellebore or is it Appalachian Bunchflower?” You can find it if you search amongst the old Shortia articles on our website. I decided to make a chart showing the five *Veratrum*s we could find in our mountains. The two Penny wrote about, *V. viride* and *V. parviflorum* are the most common. *Veratrum latifolium* is quite uncommon but Penny and I have both found it at Dupont Forest! I found it only once, years ago, and Penny has had the same experience. I found mine along Reasonover Trail and Penny’s was on Fawn Lake Road near the intersection with Fawn Lake Loop. We are thinking it might not bloom very often, and if only the leaves were present it would be difficult, for me at least, to tell it from Feather Bells or Fly Poison. As for the other two, *V. virginicum* and *V. woodii*, I have never seen either and they are very rare. But they do live in some of the areas we visit, so maybe one day we will find one!

Except for *Veratrum viride*, the other four plants go by either the genus name *Melanthium* or *Veratrum*, depending on which identification source you are referring to. It can be most confusing if you aren’t aware of this. If you are looking these plants up in the on-line sources “Name that Plant” and “Vascular Plants of North Carolina” you will only find them under the genus name *Melanthium*. If you look them up in Dick Smith’s book or the online “Flora of Virginia” you will find them under the genus name *Veratrum*. The on-line site “Vascular Plants of North Carolina” informs us in the “taxonomic comments” that these four species had been in the genus *Veratrum* for many decades but because of something Weakley wrote in 2018, they are now in the genus *Melanthium*. I have tried to find exactly what Weakley wrote, but can’t find anything! If you go to ITIS, which is what our Botany Club bases our plants lists on, you will see that ITIS states very decidedly that these four plants are in the genus *Veratrum* and that *Melanthium* is “Not Accepted”! Quite confusing! We will have to stay tuned to learn how this gets sorted out!



The photographs show Slender Bunchflower (*Veratrum latifolium*) flowers and leaves. The pictures were taken near the intersection of Fawn lake Road and Fawn Lake Loop in DuPont State Recreational Forest.

Veratrum viride	According to Weakley these 4 are Melanthium		
	According to TTS these 4 are Veratrum		
	M hybridum	virginicum	
	V latifolium		
			
	Flowers 1 inch across. Petals have ciliate margins	Flowers $\frac{1}{2}$ inch across Petals are dawed and have very wavy margins	Flowers $\frac{3}{4}$ inch across Flowers - $\frac{3}{4}$ inch across
			
	Leaves - up to 6' tall	Leaves - up to 4' tall	Leaves - up to 6' tall Leaves - $\frac{3}{4}$ inch across
			Leaves - up to 12" long 2-4" wide Extremely rare - One population in Polk County. Also found in Pickens County, Yocassee Gorges.
			Bog Bunchflower leaves - up to 2' long less than 1 wide Rare in our mountains. Grows in wet places.
			Crisped Bunchflower leaves - up to 2' long 1-2" wide Found at Table Rock State Park. I saw it along Reckonover Trail in Dupont Forest. Penny found it on Farm Lake Road.
			

What's in a Name – *Smallii*

by Penny Longhurst

It's amazing what you see when you have nothing but time on your hands. I've been wandering around my neighborhood this spring and noticed "one of those plants with yellow flowers" growing almost everywhere. It definitely wasn't Golden Ragwort (Golden Ragwort (*Packera aurea*)); the leaves were wrong. Fortunately I had been scouting at Glassy Mountain earlier this year and finally realized that it was probably Small's Ragwort (*Packera anonyma*). Coincidentally another plant named after Small grows at Glassy; it's one of my favorites, Elf Orpine (*Diamorpha smallii*).



Small's Ragwort (*Packera anonyma*)



Elf Orpine (*Diamorpha smallii*)

The epithets *smallii*, *smalliana*, and *smallianum* are named after John Kunkel Small, a botanical taxonomist who became the first Curator at the New York Botanical Garden. More than 2,000 genera, species, and binomials (genus + epithet) were named after Small. Weakley lists 13 native species in the Southern and Mid-Atlantic States attributed to Small. He also mentions many other species previously attributed to Small that have since been renamed. Six of the 13 are found in our database: Elf Orpine (*Diamorpha smallii*), Dwarf Iris (*Iris verna v. smalliana*), Appalachian Twayblade (*Neottia smallii*), Small's Ragwort (*Packera anonyma*), Small's Penstemon (*Penstemon smallii*), and Southern Sanicle (*Sanicula smallii*). The genus *Smallanthus*, which includes the Yellow Leafcup plant (*Smallanthus uvedalia*) that we see on our Craven Gap walks, is also named after Small.

John Kunkel Small was born in January 1869 in Harrisburg, Pennsylvania. He graduated from Franklin and Marshall College with a degree in Botany in 1892. In the summer of 1891, Small and one of his classmates, Arthur Heller, went on a botanical excursion to the mountains of Western North Carolina, travelling from Roanoke, VA, to Grandfather Mountain and Roan Mountain. Their account of the trip, "*Flora of Western North Carolina and Contiguous Territory*", was published in the Memoirs of the Torrey Botanical Club in 1892. Although it's a scientific publication, it is written in a very casual and amusing manner, describing the many trials and tribulations they encountered during their trip. Among the 460 plants they identified (that's some plant list!) were 10 that had not previously been reported in the Southern states. Six of those are in our database: Spotted Spurge (*Euphorbia maculata*), Mountain Sandwort (*Minuartia groenlandica*), Aniseroott

(*Osmorhiza longistylis*), Pearlwort (*Sagina decumbens*), Water Speedwell (*Veronica anagallis-aquatica*), and Wild Raisin (*Viburnum nudum var. cassinoides*). I'll write more about their findings in a future issue of *Shortia*.

In 1892 Small entered the graduate program at Columbia University in New York City to study with Nathaniel Lord Britton, author of the "*Britton and Brown Illustrated Flora of the Northeastern United States and Adjacent Canada*". His doctoral thesis entitled "*Monograph of the North American Species of the Genus Polygonum*" (the genus that included Bindweeds, Buckwheats, and Smartweeds; many of which are now in the genus *Fallopia* or *Persicaria*) was published in 1895. After he obtained his Ph.D., Small remained at Columbia as Curator of the Herbarium. During this time he published several papers on taxonomy and plant distribution, and contributed the text for several families of plants in the first and second editions of Britton and Brown's "*Illustrated Flora*".

In 1898, Small and the Columbia Herbarium moved to the newly founded New York Botanical Garden and he became its first Curator of Museums. He actively built up its collections, adding over 60,000 specimens during his tenure, and was named Head Curator in 1906.

In 1903, at his own expense, he published the first edition of his 1,400 page "*Flora of the Southeastern United States*". It was revised in 1913 and 1933, and reprinted in 2004. This monumental book contains descriptions of many species never previously described. It included native plants, ferns, and fern-allies found growing within the boundaries of the Carolinas, Georgia, Florida, Tennessee, Alabama, Mississippi, Arkansas, Louisiana and the Indian territory, and Oklahoma and Texas east of the one-hundredth meridian (the longitude that runs north-south and divides the drier west from the wetter eastern states). An early Weakley!

In 1901, Small made the first of what became annual expeditions to Florida, often with his wife and children in tow, visiting many areas never previously explored by botanists. He collected plants and seeds, published several monographs and books on its flora, and photographed the plants, landscape, and Native American artifacts. Small was alarmed by the environmental damage he saw being done by land developers. In 1929 he published a book, "*From Eden to Sahara: Florida's Tragedy*", where he described the flora and anthropological remains found in different regional areas and documented the before and after damage he observed over his several years of visits. Small's activism was one of the catalysts for the preservation of Florida's wetlands and the creation of the Everglades National Park in 1947. Many of his photographs and papers pertaining to Florida can be found online at the State Archives of Florida.

In 1925 Small turned his attention to the *Iridaceae* family. He had seen fields of wild Iris growing in Florida and, legend has it, while on a train traveling from Florida to Texas spotted acres of brightly colored Iris growing in the swamps near New Orleans. Returning to the area he found native Iris growing throughout the Lower Mississippi Delta south of Lake Okeechobee. Others had seen them too. Thomas Walter had included *Iris hexagona* in his 1788 publication of "*Flora caroliniana*", and John James Audubon had coined the name "Louisiana Iris" and included a coral-colored *Iris fulva* in his 1821 painting of a Parula Warbler. Small and his assistants returned to Louisiana for several years to harvest Iris and collect seeds. He identified and named more than 75 Iris species. However, most are now considered to be natural hybrids. Five species of Louisiana Iris are recognized: *Iris brevicaulis* (a short plant with usually blue to white flowers), *Iris fulva* (usually red to pink flowers), *Iris giganticaerulea* (up to 7' tall (!) and usually with blue flowers), *Iris hexagona* (blue flowers), and *Iris nelsonii* (red-purple flowers). Small recognized that development in Louisiana, similar to what he had

seen in Florida, was decreasing Iris habitat and published several papers warning of the destruction of the Iris fields. His interest in the Louisiana Iris was one of the factors instrumental in their preservation.

Small was also interested in ferns and fern allies, publishing "Ferns of Florida" in 1932, "Ferns of the Vicinity of New York" in 1935, and "Ferns of the Southeastern States" in 1938. I bought a copy of the New York book at the Second Story Bookstore in the Brevard Library last year. It covers the ferns found in this area very nicely and was a great bargain for \$2!

In 1934 Small stepped down as Head Curator of the Botanical Gardens, probably being succeeded by Henry Allan Gleason (of *Trillium Simile* fame), but continued as Chief Research Associate and Curator. He died at his home in Manhattan in 1938.

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[The Louisiana Iris Species Preservation Project](#)

PlantNet

Ken Borgfeldt

The Holy Grail for every club member is a phone app that with a few simple clicks will tell us “what is that plant?” It would also be nice if it were free. I started out trying to develop a project to find out which app was most accurate. However, my choices kept bombing out except for one - PlantNet. The more I played with it the more it looked like an interesting choice.

The app is available for Android and Apple. The opinions in this piece are based on the Android version as most of you know I consider Apple a fruit that you eat.

The app is described by the developers as follows:

“Pl@ntNet is an application that allows you to identify plants simply by photographing them with your smartphone. Very useful when you don't have a botanist on hand! Pl@ntNet is also a great citizen science project: all the plants you photograph are collected and analysed by scientists around the world to better understand the evolution of plant biodiversity and to better preserve it.”

Pl@ntNet allows you to identify and better understand all kinds of plants living in nature: flowering plants, trees, grasses, conifers, ferns, vines, wild salads or cacti. Pl@ntNet can also identify a large number of cultivated plants (in parks and gardens) but this is not its primary purpose. We especially need Pl@ntNet's users to inventory the wild plants, those that you can observe in nature of course but also those that grow on the sidewalks of our cities or in the middle of your vegetable garden!

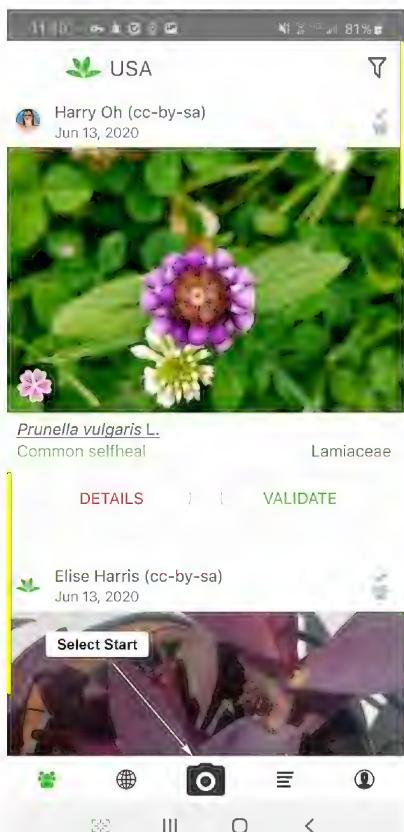
The more visual information you give to Pl@ntNet about the plant you are observing, the more accurate the identification will be. There are indeed many plants that look alike from afar and it is sometimes small details that distinguish two species of the same genus. Flowers, fruits and leaves are the most characteristic organs of a species and it is them that should be photographed first. But any other detail can be useful, such as thorns, buds or hair on the stem. A photograph of the whole plant (or the tree if it is one!) is also very useful information, but it is often not sufficient to allow a reliable identification.

At present Pl@ntNet makes it possible to recognize about 20,000 species. We are still a long way from the 360,000 species living on earth, but Pl@ntNet is getting richer every day thanks to the contributions of the most experienced users among you. Don't be afraid to contribute yourself! Your observation will be reviewed by the community and may one day join the photo gallery illustrating the species in the application.”

The app allows you to input one or many photos of the same plant to include a shot of the flower, the leaf, the stem, the fruit, and/or any other unique feature. The assumption is that the more photos of different characteristics, the better chance for an accurate identification.

The typical screens are as follows:

Opening Page



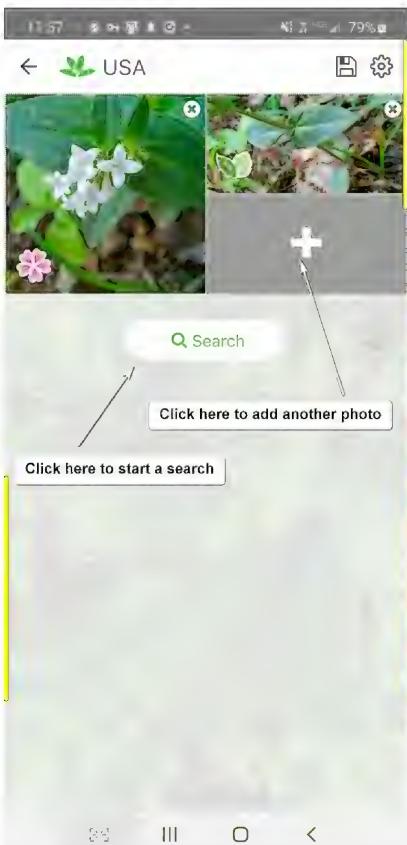
Next Page



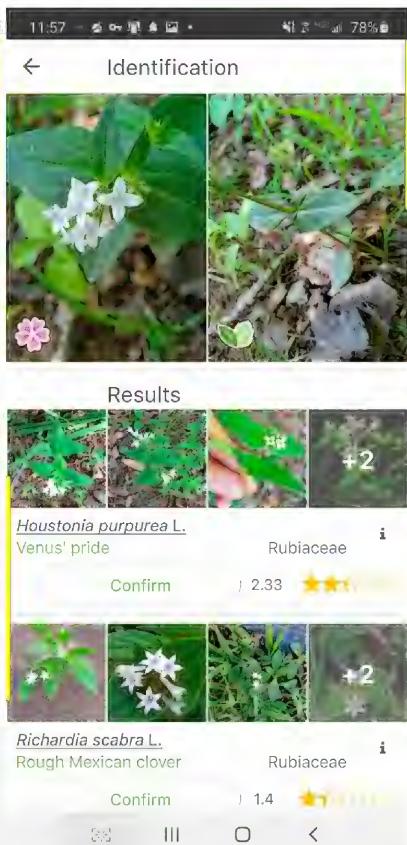
Take a Photo



Add Another Photo or Search



Final Results



The app is a part of a citizen science project on plant biodiversity. You can find out more at <https://plantnet.org/en/>. I've signed up so that my efforts are logged in and can be critiqued by other members and the information; plant photos, location can be added to the effort. So far I have not found any problem with this "registration". I've been using the app for about a month and I must admit I really like it. It doesn't always give the right answer as a first choice but usually somewhere in the list of alternatives is a likely correct answer. It's not quite so appealing as grabbing a Joe Standaert and saying "what is it?". But it is forcing me to look at more plant details than just the bloom. Try it. I think you'll like it.

Trees along the Streets of College Walk, Brevard

By Jean Woods

Franklinia – *Franklinia alatamaha*- There are two Franklinias in College Walk, one by the Lodge and one in the yard by 200 S College Walk, on the road side of the house. If you walk out of the Lodge at the main entrance and turn right, the Franklinia is in the far corner of the building “L”, against the wall. Unfortunately, it is almost dead, with only a few leaves still in evidence.

Here is the story of the Franklinia:

In 1765, botanists, John and William Bartram, observed "several very curious shrubs" growing in one small area along the banks of the Altamaha River in what is now Georgia. In 1773, William Bartram returned to this same area. He reported that he "was greatly delighted at the appearance of two beautiful shrubs in all their blooming graces. One of them appeared to be a species of Gordonia, but the flowers are larger, and more fragrant than those of the Gordonia lasianthus." The species Bartram was referring to was not a Gordonia, but rather a unique species in a genus of its own. After years of study, Bartram would name the plant in honor of a close family friend, Benjamin Franklin.

This tree is the Franklin tree - Franklinia alatamaha. This beautiful member of the tea family (Theaceae) is unique in that it no longer exists outside of cultivation. It is completely extinct in the wild. The Franklinia was nearing extinction before Europeans ever made it to North America. As Bartram first noted "We never saw it grow in any other place, nor have I ever since seen it growing wild, in all my travels, from Pennsylvania to Point Coupe, on the banks of the Mississippi, which must be allowed a very singular and unaccountable circumstance; at this place there are two or 3 acres of ground where it grows plentifully." No reports of this species came from anywhere other than that two to three-acre section of land on the banks of the Altamaha River. The last confirmed sighting of Franklinia in the wild was in 1790.

What happened to Franklinia? The truth is, no one really knows. Many theories have been put forth to try to explain the disappearance of this unique shrub. What can be agreed on at this point is that Franklinia was probably mostly extinct by the time Europeans arrived. One thought is that it was a northern species that "escaped" glaciation thanks to a few scattered populations in southeastern North America. Indeed, it has been well documented that plants grown in the northern US fare a lot better than those grown in the south. It is thought that perhaps Franklinia was not well adapted to the hot southern climate and slowly dwindled in numbers before it had a chance to expand its range back north after the glaciers retreated.

[-http://www.indefenseofplants.com/blog/2019/10/2/mysterious-franklinia](http://www.indefenseofplants.com/blog/2019/10/2/mysterious-franklinia)

Sourwood - *Oxydendrum arboreum*- If you stand in front of the Lodge and look across Bridges Creek, you will see many trees, but look toward the top and you will see the waxy, lily-of-the-valley-like, white flowers bloom on slender, drooping, one-sided terminal panicles (4-8" long) in early summer. Sourwoods are native to the southern Appalachian Mountains and grow up to elevations of 5,000 feet and rarely to 5,600, so you won't see them on the many 6,000 peaks of western NC. They get their name from the leaves, which are sour when chewed.

Dr. Mellichamp, a renowned North Carolina botanist, once told me that I would never see a sourwood that wasn't bent. I've often wondered why. Here is one explanation from George Ellison from an article in the Asheville Citizens Times:

"Murray," I asked. "Do you see the bend in that sourwood tree? Most mature sourwoods do that. I have been wondering why for a long time."

"Oh," he said, "you've got to remember that sourwood is a member of the Heath Family, which is mostly made up of shrubs. Sourwood 'decided' to be a tree, but it has retained some of characteristic growth patterns of a shrub. See how the limbs tend to arch downward like a shrub. And that natural bend in the trunk is also shrub-like. That's what I think."

The honey made from the sourwoods flowers is considered by some to be the best-flavored honey in North American. The honey is light colored and smooth and buttery. However, I have always wondered how beekeepers knew that the bees only went to sourwood trees?

Walnut Tree – *Juglans nigra* – is a beautiful native tree, with compound leaves, a nut for snacks and cooking, and a strong wood for fence posts, poles, shingles, and tables. There is one by the gazebo and many in the woods across Bridges Creek. However, the walnut trees have a “dark” side: The black walnut’s roots, which may extend 50 feet or more from the trunk, exude a natural herbicide known as juglone in its roots, leaves and fruit husks. This chemical inhibits many plants’ growth under and around the tree, thereby limiting the tree’s competition, leaving more water and nutrients for itself. The wood was sought after in Colonial times for cabinetry. It was also used for gunstocks in the civil war and the first and second World Wars, as well as for airplane propellers. Squirrels love the nuts as you have probably noticed.

River Birch – *Betula nigra* – These line the approach to the Lodge and you will recognize them by their papery, scaly bark. While they are usually found along stream banks and in flood plains, they grow quite happily in dryer habitats. It’s not the moisture they are attracted to, but the disturbance that happens in flood plains. In fact, it does well in moist soil as well as drier environments, and likes full sun. It does need the rivers and flood plains to reproduce by dropping its seeds into the river, where they will find the mud they need to germinate. In the past, the wood was used for ox yokes and wooden shoes. There are more by the cottages, and by the entrance to the Inn.

Southern Magnolia – *Magnolia grandiflora* – There is one in the front of the Lodge by the parking lot. They are native to the southeast and found in nature in southeastern NC but grow well in many parts of the state where they are planted. They are happiest in the subtropical forests of the Gulf and south Atlantic coastal plain. The blooms are large, showy, and fragrant. You will find more around the campus and three growing near the Cottages.

The magnolia tree has been found in fossils dating back 36 million to 58 million years ago. The magnolia tree is considered to be a primitive flowering plant because fertilization takes place from beetles instead of bees. The magnolia existed long before bees or other flying insects.

Until early 2018, an iconic Southern Magnolia planted by President Andrew Jackson nearly 200 years ago grew near the South Portico of the White House. It was reputedly planted as a seedling taken from Jackson's plantation, The Hermitage in Tennessee. It was the oldest tree on the White House grounds and was so famous that it was for decades pictured on the back of the \$20 bill as part of a view of the South Front.

There was a tradition of gifting cuttings or seedlings grown from the tree: Reagan gifted a cutting to his Chief of Staff Howard Baker upon his retirement, and Michelle Obama donated a seedling to the "people's garden" of the U.S. Department of Agriculture. Since the 1940s, when the tree suffered a gash that caused a large section of its trunk to rot, the tree had been supported by metal poles and cables. In 2017 it was decided on the advice of the National Arboretum to cut down and remove the Magnolia because the trunk was in an extremely fragile condition and the supports had been compromised.

Willow Oaks -*Quercus phellos* – These beautiful oaks line the entry to College Walk, 7 on either side and there are two more along N College Row. (There are maples on the east side and willow oaks on the west side.) More are to be found by the Cottages. These trees are often used by landscapers because the narrow leaf decomposes rapidly, relatively fast growing, and the acorns are small. They are native to the southeast in the piedmont and coastal plain, but not the mountains, though they do well here when planted. They provide dense shade and have a graceful shape. The leaves of oak trees persist longer than the leaves of many other trees and come out later in the spring.

Red Maple – *Acer rubrum* – Many of the trees along the street are red maples, a medium size tree native to the east in all regions. The flowers and twigs are red giving its name. The fall foliage is a brilliant red and sometimes a golden

yellow. While the sap can be used to produce maple syrup, red maples are not very productive and need to be at least 40 years old before you can tap them.

Bradford pears – *Pyrus calleryana* – Bradford pear trees were popular as landscape trees in the 1960's and on but were found to have multiple problems. The branches are brittle and break easily and, thought to be sterile, it turns out they are not. The birds eat the small fruit and poop it out in meadow and fields where it sprouts into the invasive callery pear tree. The funky – smelling flowers are pretty in the spring but are often turned to brown by late frosts. There are several along South College Row that are slowly breaking and being replaced with better choices.

Yellowwood – *Claudrastis kentukea* – there is one yellowwood tree in College Walk at 44 South College Row and it is probably the most unique tree on the campus. These trees are not found very often, but I don't know why, as they have wonderful blooms and a very pleasing shape. Yellowwood have smooth bark and large hanging clusters of fragrant white flowers. They are native to the interior of the southeast in patches from western NC to the eastern edge of Oklahoma, though never in abundance. They had a compound leaf and their heart wood is a brilliant yellow color, used in the past as a dye.

European chestnut – *Castanea sativa* - There is one chestnut tree, behind Cluster home 24. I think it is a European chestnut tree, native to Southern Europe and Asia Minor. The nuts are edible and are contained in a spiky capsule and eaten by wildlife. This may be a Chinese chestnut. Any ideas?

The **American chestnut** at one time was the dominant tree in forests in the eastern USA but was wiped out by mid-20th century by the chestnut blight, a fungal disease that came from chestnut trees introduced from East Asia. 3-4 billion trees were destroyed in the first half of the 1900's. Hiking in Pisgah Forest you will often find small trees that sprout from the stumps of dead chestnuts, but as they age, the blight takes over and then they die. There are isolated trees that have reached maturity and set seed, but they are very rare. Two of the largest surviving American chestnut trees are in Jackson County, TN, several in Warm Springs, Ga, and another in Talladega National Forest in Alabama.

The American chestnut has been crossed with the Chinese chestnut which is resistant to the blight, to get a strain that has the most American chestnut DNA that can grow and mature.

Fringe tree – *Chionanthus virginicus* – called the “best native Tree nobody grows” by Southern Living magazine. Fortunately, we have 2 at College Walk, one set back a little by 108 S College Row and one between 200 S college Row and the road. The name comes from the cloud of fleecy white, shortly fragrant flowers that hang from the branches in late spring and early summer. Another common name is “old man’s beard”. It is not to be missed when in bloom. *Chionanthus* is derived directly from Greek for snow flower, *chion* meaning snow, and *anthus* meaning flower.

Redbud – *Cercis canadensis*- Found between 102-104 Lodge, by the parking lot, an AND in the corner between 200-180 S College Row. *Cercis* is from the Greek *kerkis*, which means “a weaver’s shuttle” and refers to the shape of the fruit. Native to eastern North American, is an attractive shrub with showy, light to dark magenta pink flowers in the spring. The flowers form on the branches before the leaves come out. They are pollinated by long-tongued bees such as carpenter bees. In some parts of southern Appalachia, green twigs from the eastern redbud are used as seasoning for wild game such as venison and opossum. Because of this, in these mountain areas the eastern redbud is sometimes known as the spice wood tree. Nicknamed “Judas Tree”, it is said that Judas hanged himself on such a tree, and that afterward the flowers “blushed in shame.” Native Americans ate flowers raw and boiled and roasted the seeds for food; they used different parts of the tree for medicinal purposes

Sycamore -*Platanus occidentalis* – Sycamores make handsome shade trees for large landscapes and are the largest deciduous tree in the Eastern United States. There is one back of 200 S College Row and you can tell it by its height as it is much taller than the nearby maples which are a medium size tree. The bark is a pattern of gray-brown that peels off in patches to reveal light gray or white wood beneath. The leaves are large and decompose slowly which can be a problem in the fall. They have 1-inch balls that hang from the tree all winter and fall. Sycamores are an indicator species for

bottom land and floodplains. Whenever you see them, you will either see a nearby stream or river or know that there was once one there.

Fraser Magnolia – *Magnolia fraseri* – The mountain magnolia is native to the southern Appalachian Mountains and the adjacent Atlantic and Gulf Coastal Plain. There is one in College Walk at 200 S College Row and near the road where the culvert under Neely Road, that was rescued from an excavation for a mountain home. It has a large showy bloom and the bloom can be seen in the woods in the late spring when driving up 276 to the Parkway. The fruit is high in fat and the birds feast on it in the later summer and fall as they are migrating and need the fuel for their journey.

About 300 million years ago, the Southern Appalachians were young rugged mountains and there were no mammals, birds, reptiles or flowering plants. The dominant plants were tree-sized ferns, horsetails and club mosses, and the dominant land animals were prehistoric salamanders. It wasn't until about 150 million years later that dinosaurs became the dominant land animals. But some early primitive flowering plants, including magnolias, had also evolved by then. It wasn't until 65 million years ago, after the dinosaurs were extinct, that flowering plants, mammals, and birds began to rapidly evolve and diversify. One of the most important evolutionary strategies for flowering plants was to attract and use insects to transfer pollen from plant to plant. Because magnolias were among the earliest flowering plants, they adapted to pollination before bees existed and so are pollinated by beetles instead. Magnolias are indeed botanical relicts, and there is much to admire about them including their staying power.

<https://www.brnnetwork.org/2019/07/08/fraser-magnolia-trees-ancient-botanical-relics/>

Poplar or Tulip Tree – *Liriodendron tulipifera* – isn't a poplar but is in the Magnolia family, native to eastern North America, and grows to be 90-120 feet tall. Take a look at the flower and you will see a resemblance to the magnolia flower. There is a wonderful one between 190 and 194 cluster homes. They are the tallest trees in our forest and have a very straight trunk. Native Americans and early settlers carved canoes from its light, buoyant trunks. The Joyce Kilmer Memorial Forest in western NC, has popular trees that are more than 300 years old, as this tract escaped lumbering in the 1920's. The largest are more than 20 feet in circumference and over 100 feet tall. Yellow Poplar trees are an early succession species, readily coming up in old fields and disturbed soils.

Hemlocks - *Tsuga canadensis* - There are several around College Walk and doing well as they have been treated for the woolly adelgid, a virulent sap sucking insect brought in from Asia. The loss of these graceful, drooping trees is widespread in our surrounding forests. It is impossible to treat all those in the forest, but the ones around Davidson River campground have been treated. They like to grow around stream banks, and their loss is contributing to rising water temperature in the streams and is detrimental to fish living there. They are considered a foundation species and their loss is causing systemic changes throughout the associated ecosystem. The ones on the cul de sac on College View Court are badly infested with the adelgids. The ones along Neely Rd. by 200 S College Row are healthy as they were treated for the adelgids.

Crepe Myrtles – *Lagerstroemia spp.* - There are several crepe myrtle trees in College Walk, one is at 126 S College Row, but they are scattered around the Lodge and Cottages. They are native to Japan and southeast Asia but grow well in the US. The bark is particularly interesting as the smooth gray outer bark flakes away to reveal glossy cinnamon brown bark beneath. They come in several colors: white, pink, and "watermelon" red. They tolerate heat and are easy to grow. The genus is named after the Swedish merchant Magnus von Lagerström, a director of the Swedish East India Company who supplied Carl Linnaeus with plants he collected.

Bald Cypress - *Taxodium distichum* – There is a bald cypress at the end of Yale but very near Neely Road, and was surely planted there some time in the past as they are not native to this region. They are a deciduous conifer and native to the southeastern states along the coastal plain, usually in wet or swampy habitats, but can grow in the dry conditions as you see here. These trees lose their needles each winter and grow a new set in the spring. The russet-red fall color of its lacy needles is a treat in the fall. The "knees" that they are known for only develop when they are in swampy conditions. The heartwood is resistant to decay and was used in heavy construction such as docks, boats and bridges.

Dogwood – *Cornus florida* – There are a number of our native dogwoods, several by Neeley Road back of the open space south of cluster home 137 and by the Cottages. The flowering dogwood is one of the few trees with showy flowers that are easy to notice. And even then, what looks like a flower with four white petals is actually four modified leaves (bracts) surrounding a cluster of inconspicuous greenish-yellow flowers in the center. It is presumed that bracts evolved to take on the role of advertising for pollinators in plants where the petals themselves were not already large and showy and as pollinator landing sites. The red, berry-like fruits are valuable to wildlife, particularly migrating birds on their way south in the winter. The wood is hard and does not splinter. It was used to make shuttles for the early mills, before plastic became popular.

According to the legend, the dogwood felt great sorrow for the role it played in Jesus Christ's death. While on the cross, Jesus sensed the tree's anguish, and he decided to transform it so that it could never again be used in crucifixion. From that point on, the dogwood was no longer a tall, stately forest tree.

Arborvitae – *Thuja occidentalis* – There are numbersome arborvitaes around the campus, particularly on the back on the East Wing. While there is historic evidence that arborvitaes were native to North Carolina, no remaining populations exist. These trees are more commonly found farther north. The name arborvitae or "tree of life" dates from the 16th century when the French explorer Cartier learned from the Indians how to use the tree's foliage to treat scurvy. The foliage is rich in Vitamin C and is believed to be what cured the scurvy of Jacques Cartier and his party in the winter of 1535–1536. Due to the presence of the neurotoxic compound thujone, internal use can be harmful if used for prolonged periods or while pregnant.

Sweet Gum – *Liquidambar styraciflua* - there is a large sweet gum in front of the East Wing. It is one of only three species in the Liquidambar genus. The others occur in Turkey and in Formosa. The resin of this genus was known to the Europeans who first explored North America and was highly prized as an incense and additive for medicines. The Cherokee and Choctaw also combined the resin with strawberry bush to make a beverage of unknown appeal, and the resin, when hardened and sticky, was chewed as a gum. The sweet gum is an early successional tree, coming up early in old fields and disturbed places.

"The early settlers adopted many of the Indian uses for sweetgum, either through observation of native practices or discovered independently. In Appalachia, a concoction of the resin mixed with whiskey was chewed to clean teeth, heal gums and mouth lesions, or to relieve toothache. Applying the balsam to the skin might help with chigger and other insect bites. It may also have been used as an insect-repellent, although other botanical sources were more effective. It fulfilled these roles for soldiers in the Confederate army during the Civil War. The resin was tapped in the South especially before the Civil War, but subsequently it couldn't compete economically with Asian storax and other resin-producing trees." <https://ufi.ca.uky.edu/treetalk/ecobot-sweetgum>

Serviceberry -*Amelanchier sp*- This small tree is by back entrance to West Wing and one was recently planted in the Inn Monarch Wayside. One of the earliest trees to bloom in the spring, it has a profusion of white, short-lived blossoms, and is a member of the rose family. The fruit is a berry that is eaten by birds. Native Americans used the wood for arrow shafts as it was hard, close-grained, and heavy.

The name 'serviceberry' comes in folklore, from noting that the flowers bloom about the time roads in the Appalachian Mountains became passable, allowing circuit-riding preachers to resume church services. And the blooming serviceberry indicated the ground had thawed enough to dig graves, so burial services could be held for those who died in the winter when the only way to deal with the bodies was to allow them to freeze and wait for spring. The name most likely comes from the similarity of the fruit to the related European *Sorbus*, which was pronounced "sarviss" in Elizabethan English.

Other names are: shadblow/shadfly (because it fruits in June when the shad swim into the rivers), sugarplum, and juneberry—just to name a few.

Sweet Bay – *Magnolia virginiana* – The Sweet Bay is by the porch at Inn and is also back of the East Wing. This magnolia is native to the eastern coastal areas of the United States and has smaller flowers than the Southern magnolia and is planted less frequently. Sweetbay magnolia is named for the sweet-smelling bay-like leaves. Other names include swamp or laurel magnolia.

Saucer Magnolia – *Magnolia x soulangiana* – This hybrid tree is located back of the West Wing. Saucer magnolia (*Magnolia x soulangiana*) is a deciduous hybrid magnolia. It is derived from Yulan magnolia (*Magnolia denudata*) and lily magnolia (*Magnolia liliiflora*). Saucer magnolia is considered a small tree, or large spreading shrub. The plant is named for its distinctive wide, saucer-like flowers. It was first cultivated in 1826 by French horticulturist Etienne Soulange-Bodin. The plant entered cultivation in England, becoming popular there before being adopted in other parts of Europe, as well as North America.

2020 Annual Report

Interim Treasurer's Report for July 1, 2019 to June 30, 2020

Membership:

As of June 30, 2020 we have 99 members, including 1 honorary and 10 new members. Because of the cancellation of all club activities, dues for 2021 are waived for all members paying full dues in 2020.

Financials:

We started the fiscal year with \$4,722.24 (\$4,238.24 after paying printing costs incurred during the previous fiscal year). As of June 30, 2020 we have \$4,340.51 in the bank. Our income was \$2,309 and expenditures were \$2,691. We donated \$50 to the Botanical Gardens at Asheville and \$800 to Bullington Gardens. Fortunately the Master Recorder didn't print any plant lists for 2020 field trips before the COVID-19 shut down, so we are in good shape going into the next fiscal year.

Dues	Donations In	Sales (Tree Book)	Printing Out	Postage Out	Donations Out	Program Out (Tree Book, Honoraria, etc.)	Misc. Out
\$1,534	\$224	\$551	\$719	\$46	\$850	\$1,011	\$65

Respectfully submitted,

Penny Longhurst

Webmaster's Report – 7/1/20 - Penny Longhurst

Our website, wcbotanicalclub.org, was created in October 2015. There are currently 97 club members who receive email notifications about new posts. In addition to members we have an additional 35 followers or subscribers who are notified automatically whenever we post.

As of July 1, 2020 we've created 172 posts. We've had 302,979 views (when a visitor loads or reloads a page), and 24,874 visitors (when a user or browser goes to our site for the first time in a given period [day, week, month]). The greatest number of views is on the day the email is sent to members. The new winner in this category was the "Sam Knob – Flat Laurel Creek Loop" field trip on August 16, 2019 with 2,953 views. Our best ever post was for the "Purchase Knob" field trip on 9/8/19, with 3,743 views over the 3 day period following the post. In addition to the "Posts", our most popular pages are the Plant Keys "Bryophytes" and "Violets", both created by Bonnie Arbuckle and Betty Jones. This spring they were 3rd on the list when Google searches were run for "NC violets", "NC mosses", or close approximations. The "Wildflower of the Week" page, written by Jim Poling, also gets a high number of hits.

Although we've not been able to do any formal field trips this year, we have been able to post pictures from "Scouting Trips" and pass on tips about places to visit. Thanks to all members who have contributed information and pictures to help us continue posting. Hopefully these scouts will help you decide where and when to venture out.

Master Recorder's Report - Ken Borgfeldt

This is where I usually hand out the checklists for the upcoming walks through the end of the year. With the exception of the Hardy Souls Walk, we have sat out the entire 2020 season. This constitutes my report for the period 2019-2020.

WCBC WORK IN THE NATIVE WOODLAND GARDEN AND OTHER BULLINGTON NATURAL AREAS (JULY 2019 to July 2020) - Juanita Lambert

With near-normal rainfall during the second half of the 2019 growing season, all plants remained healthy and kept the Bullington Botanical Bunch busy weeding and pruning shrubs and trees. We substantially reduced an aggressively-spreading patch of *Calycanthus floridus* (Sweetshrub) on the berm behind the rain garden over a three-week period by uprooting runners. A fresh layer of wood chips spruced up the trail through the garden.

Some transplanting began in September and continued in October, including removal of some *Xanthorhiza simplicissima* (Yellow root) from the rain garden and *Asimina triloba* (Pawpaw) from the berm, for potting up and sale to the public. And we finally finished the nature trail clean-up project begun in June 2018.

Near-normal to much-above-normal monthly rainfall in March through May of 2020 resulted in quite adequate soil moisture to promote rampant plant growth, even with a rather dry June and early July. However, the group didn't start regular activity until COVID-19 seemed to be easing in late April. The first priorities were cleaning up fallen branches from the off-season and weeding the results of Mother Nature's abundant moisture, including quantities of poison ivy, aggressive yellowroot, and spreading *Leucothoe axillaris* (Coastal Doghobble) above the Amphitheater. We repaired a bamboo trellis for wild yams and installed a low rope fence to keep people from trampling some *Ophioglossum vulgatum* (Southern Adder's-tongue) ferns (a unique and uncommon fern) that had voluntarily appeared near the garden entrance.

The *Rhododendron catawbiense* (Catawba Rhododendron) specimens near the Azalea Repository grown from Roan Mountain seed produced an impressive floral display this year, but we found that other gardeners had been dumping brush and other debris amongst them. So we cleared nearby woody vegetation competing with the Rhododendrons and created a brush barrier to isolate the area. This clearing led to the creation of a Catawba Loop trail from the Azalea Loop trail, a development that could be an attraction in future years if such good blooms recur.

We were very happy to receive six *Platanthera ciliaris* (Yellow Fringed Orchid) specimens from Linda Kennard, a native-plant-oriented volunteer and planted them near the Amphitheater. Conversely, we dug numerous *Magnolia macrophylla* (Bigleaf Magnolia) seedlings for potting and sale to the public.

SHORTIA

A quarterly publication of the Western Carolina Botanical Club

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2Q, 2020

The mission of the Club is to identify and study native plants and their habitats and to advocate the protection of biodiversity in our natural world. Membership is open to all. Individual/family memberships are \$15. New members joining from the period July 1-December 31 pay \$8. All memberships are renewable on January first of each year. Send dues to Western Carolina Botanical Club, 351 Cheestoonaya Way, Brevard, NC 28712

SHORTIA

NEWSLETTER OF THE

WESTERN CAROLINA BOTANICAL CLUB



Shortia galacifolia

Oconee Bells

Fall 2020

Board of Directors

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MEMBER NEWS

Field Trip Cancellations: Occasionally, field trips must be canceled or changed either for weather conditions or other reasons such as road closings. Such changes are sent out by email to all members by 7 AM the day of the field trip. If you do not have email access, please call the leader, co-leader, or recorder (whose phone numbers are listed on the schedule) to be sure that the walk is going to go as planned. Indoor programs are canceled when Henderson County Schools are closed (see <http://www.hendersoncountypublicschoolsnc.org>) but NOT necessarily canceled because of the delayed opening.

For any change of address, email or telephone number, please send an email to wcbotanicalclub@gmail.com.

Our webpage is located at <http://wcbotanicalclub.org>

NOTE: All club activities are canceled for the remainder of 2020 due to Covid-19 concerns. All full year (\$15) dues for 2020 will be applied to 2021, so memberships will be automatically renewed for 2021 (assuming there are activities in 2021).

President's Message

Gayle Mercurio

Hi everyone. I'm not sure when we'll be getting back together again but it's great that members are pitching in to keep the WCBC spirit alive. Special thanks to Penny Longhurst for inventing the virtual walks and putting them online and to Ken Borgfeldt for keeping communications and Shortia going. Also a special thanks to Joe and Mary Standart for the Buncombe Name Game giving us snippets of local history. All these activities are important in keeping the focus of our club going during these pandemic times.

A special thanks to the following people who have helped brightened our day by sending pictures for the virtual hikes, providing information on where to go to see plants, and contributing articles to Shortia: Jock Alpin, Diane Bauknight, Ken Borgfeldt, Charlie & Alice Brice, Jackie Burke, John & Daudie Colson, Richard Holzman, Betty Jones, Penny Longhurst, Jim Poling, Lucy Prim, Joe Standaert, Aleta Tinsdale, Harriet Walls, and Kent Wilcox. Thank you all. Let's hope we get back to enjoying our favorite hikes and each other's company in the coming spring.

Plants We Love to Hate! Thistles

Penny Longhurst

You could say that thistles are misunderstood plants. We hate them because of their spiky spines and perceived invasiveness, but the flowers are beautiful and loved by bees and butterflies. Some thistles are also host plants for insects and seeds and thistle down provide food and nesting material for birds. They just can't win. We don't see many thistles on our field trips, but there is a large patch near my home where I've often photographed bees and butterflies. This year I've been able to spend a lot more time there and finally noticed that there were actually two different types of thistle in the patch! The more abundant and aggressive plant turned out to be the non-native Nodding Thistle. It has large drooping flowers that bloomed in May/June and was dead by the end of July. From the photograph you can see how it got its name. The other plant, Bull Thistle, sadly also a non-native, grows much more slowly and didn't bloom until August.

Thistle is a generic term applied to many plants in the Aster family that possess spines. They are generally annuals or biennials, and the flower heads contain only disk florets. The Bull Thistle (*Cirsium vulgare*) is a member of the *Cirsium* genus, known as True Thistles. According to Weakley, 14 different species of *Cirsium* may be found in the Southern Appalachians. At least 8 of them are in our database, although we rarely see them on our walks: Tall Thistle (*Cirsium altissimum*), Carolina Thistle (*Cirsium carolinianum*), Field Thistle (*Cirsium discolor*), Yellow Thistle (*Cirsium horridulum*), Swamp Thistle (*Cirsium muticum*), and Pasture Thistle (*Cirsium pumilum*) are native to North America. The invasive spreaders, Canada Thistle (*Cirsium arvense*) and Bull Thistle (*Cirsium vulgare*), are non-native.

Linnaeus named the Bull Thistle, a native of Europe and Asia, *Carduus lanceolatus*. We now know it as *Cirsium vulgare*. The name *Cirsium* comes from the Greek for "swollen vein" from the use of thistles to treat swollen veins, and *vulgare* is from the Latin meaning "common". I first noticed this plant was different from the Nodding Thistle because the basal leaves formed a large, dark green flat rosette. It didn't seem to be as aggressive because there were a lot fewer plants. It took over a month to send up a shoot and then another month to flower. The flower heads are large, erect, and distinctive with their nasty spiny involucral bracts. The leaves and stems are also intensely spiny. The club has seen Bull Thistle at Purchase Knob and Sam Knob Meadow.

Bull Thistle (*Cirsium vulgare*)



My Nodding or Musk Thistle (*Carduus nutans*) is a member of the Plumeless Thistle family. "Plumeless" means the bristles (parachute-like structures) above the achenes (the seed) lack the plumes that are found in True Thistles. Thus they appear less feathery than those of thistles in the *Cirsium* genus. On close examination of the flower the lack of plumes or "bump-like structures" is also obvious. Four different species of *Carduus* grow

here; all are non-native. Two of them, Plumeless Thistle (*Carduus acanthoides*) and Musk or Nodding Thistle (*Carduus nutans*), are in our database. Thistles in the *Carduus* genus have spiny-winged stems which distinguish them from those in the *Cirsium* genus.

The name *Carduus nutans* is derived from the Latin name for “thistle” with “nodding or drooping” flowers. A European native, it was described in several early European texts and included in Linnaeus’ *Species plantarum*. The distinctive characteristics of *Carduus nutans* are the drooping flower-heads surrounded by large involucral bracts, contributing to its common name. Hopefully this feature will help us identify the plant if we encounter it on future field trips.

Nodding Thistle (*Carduus nutans*)



Recently on my wanderings I have seen two lovely native thistles. They were first described only in the early 1800’s and thus were not seen by Linnaeus. Maybe the early naturalists were not inclined to collect thistles! That’s a pity, because I think that they are real beauties. We usually see the Swamp Thistle (*Cirsium muticum*) on our summer Frying Pan and Sam Knob Meadow walks. Apparently it doesn’t need to be in a swamp to flourish. When flowering, the plants are usually covered with butterflies and bees so they’re obviously a great source of pollen and nectar. The specific epithet, *muticum*, comes from the Latin word *muticus* meaning blunt. *Cirsium muticum* was discovered by Michaux in the “high mountains of Carolina” and included in his *Flora Boreali-Americana*. Swamp Thistles, like most other thistles are biennials; they bloom in their second year of growth and then die. Fortunately there are many of them growing along the trail to Sam Knob Meadow and obviously they produce sufficient numbers of viable seeds to carry on the dynasty.

The second thistle was a real puzzle for me although, in retrospect, maybe it shouldn’t have been. I first spotted it standing alone, tall and proud, and covered with flower buds next to mile marker 430 on the Blue Ridge Parkway at the beginning of August. I was pretty sure it wasn’t Tall Thistle (*Cirsium altissimum*) because the leaves were all lobed and very spiny. I returned several times to see if it had bloomed yet and also sent emissaries, but all it did was grow taller and taller. It looked like a huge candelabra! There wasn’t another thistle anywhere in sight. Finally on September 10th there was a single bloom – at least 6 feet in the air! Fortunately I had leather gloves and a husband in the car and he was able to gently lower the flower far enough for me to take pictures. I believe it to be a Field Thistle (*Cirsium discolor*). Field Thistle was included in Willdenow’s *Species plantarum* under its previous name of *Cnicus discolor*. The specific epithet, *discolor*, probably comes from the Greek word *dis*, and thus means having two colors, of leaf or flower. Like the Swamp Thistle, Field Thistle is a biennial, but sometimes is a short-lived perennial. Sadly, that probably means that my mystery thistle will be missing from this spot next year.



Swamp Thistle (*Cirsium muticum*)



Field Thistle (*Cirsium discolor*)

The flowers of the two plants look quite similar with very interesting and attractively textured and colored involucral bracts (the portion of the head below the disk flowers). However, the Field Thistle differs from the Swamp Thistle by having long spiny involucral bracts and a fierce-looking set of leaves just below the flower head. In comparison, the flower head of the Swamp Thistle is more compact and lacks spines. The stems of the two plants differ also; the Swamp Thistle is a much more delicate looking plant compared to the sturdier Field Thistle.

It's time for us to recognize that many thistles are worthy of being considered wildflowers and not weeds. While we need to pay close attention to the non-native thistles to ensure that they do not become invasive pests, we should enjoy the beauty of thistles and value their important role in supporting birds and pollinators (and if you find a thistle growing nearby, please let me know!).

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Smartweed Cheatsheet

Ken Borgfeldt

Walking Oklawaha Greenway as many days as I have this past COVID -19 season, I began to notice that there were several smartweeds, especially in the wetter areas. I decided to look a little further, the operative word being "little", into the smartweed family. The smartweeds are in the *Persicaria* genus and I found several other species that were familiar to me. All I wanted to do was to be able to label my photos, so I built a cheatsheet for myself which I share as follows:

Water Smartweed (*Persicaria amphibia*)

Its adaptations to differing water conditions make it quite variable.

Ocreae (tubular sheaths) are transparent (appearing light green), light tan, or brown, depending on their age, upper rims of these ocreae curl outward, and they are often have a wavy edge. The ocreae are covered with spreading bristly hairs. Stems of terrestrial plants are light green, yellowish green, or reddish green, glabrous to pubescent, relatively stout, and terete. Leaf shape is lanceolate-oblong or elliptic-oblong with obtuse tips and rounded bases.

Aquatic form of this plant, the stems and ocreae are similar, except they are less hairy or glabrous.



Pale Smartweed (*Persicaria lapathifolia*)

Ocreae (short sheath) 1-3cm long, not ciliate, glabrous or minutely strigillose on the nerves. Ocrea (short sheath) brownish, cylindric, chartaceous, base inflated, margins truncate. Leaves often with a triangular reddish blotch in middle of the upper surface.



Long-bristled Smartweed (*Persicaria longiseta)**

Leaves smooth above, sparsely hairy on veins below, elliptic to lance-shaped. Racemes interrupted at least near the base. Deep reddish-pink flowers on erect terminal spikes only 0.2" wide. Base of leaf is wedge-shaped, petiole 1-5 mm long. An erect annual with smooth, ridgeless stems. The cilia on the ocreae are unmistakable: 1/4" to 3/8" long



Pink Smartweed (*Persicaria pensylvanica*)

An erect, branching annual to 4' tall. Ochrea (short sheath) 5-20mm, paper-like, base inflated, glabrous or appressed-pubescent. Upper stem has numerous hairlike glands. Outer tepals with inconspicuous and irregularly-forking veins. Ochrea (short sheath) not ciliate. Rather tight, erect cylindric racemes, 1-2" long and 0.5" wide. Stems have a tendency to zigzag between the alternate leaves. Leaves up to 5" long.



Dotted Water Smartweed (*Persicaria punctata*)

Flowers white or green, borne in erect, interrupted racemes. Ochrea (short sheath) brown, cylindric, paper-like, base inflated, margins truncate. Leaf blade without dark blotch, lanceolate to lanceolate-ovate or subrhombic.



Swamp Smartweed (*Persicaria setacea*)

Racemes densely flowered. Calyx greenish to pinkish or whitish. Leaves lacking a triangular reddish blotch. Blades cuneate to truncate at base. Ocreae (short sheath) strigose & hirsute, at least some hairs loosely ascending to spreading.



Spotted Lady's-thumb (*Persicaria maculosa)**

Spikes of flowers upright. Bristles of ocreae 0.2-1.3 (-2) mm long. Leaves have a purplish triangle in the middle, like a thumbprint. Similar to *P. longiseta*, but bristles on the leaf node collars only 2mm long.



Jumpseed; Virginia Knotweed (*Persicaria virginiana*)

Leaves usually marked with a purplish/blackish, inverted "V" towards base. Leaves tapering to acuminate apices. The base of the leaf stalk forms a ocrea (short sheath) around the stem. Ocrea (short sheath) 10-20mm, margins truncate, surface strigose to tomentose. Flowers strung out along a slender terminal spike up to 18" long. 4 tepals ~ 0.1" long, with base of each flower or its stalk in a sheath. Tension in pedicel articulation is sufficient to throw mature achenes 3-4m.



Mild Water Pepper (*Persicaria hydropiperoides*)

Flowers without dotted glands, in erect spikes with gaps between clusters. Leaves usually less than 15mm wide, 3.5 or more times longer than wide.



Water Pepper (*Persicaria hydropiper)**

The leaves are alternate and almost stalkless. The leaf blades are narrowly ovate and have entire margins fringed by very short hairs. They are tapering with a blunt apex. Each leaf base has stipules which are fused into a stem-enclosing sheath that is loose and fringed at the upper end. The inflorescence is a nodding spike. The perianth of each tiny flower consists of four or five segments, united near its green base and white or pink at the edges. There are six stamens, three fused carpels and three styles. The fruit is a dark brown oval, flattened nut.



Halberd-leaved Tearthumb (*Persicaria arifolia*)

Leaves to 6" long, broadly triangular shape like that of a spearhead with flaring triangular lobes.



Arrow-leaved Tearthumb (*Persicaria sagittata*)

Persicaria sagittata is an annual herb up to 200 cm (80 inches) tall, with prickles along the stem. Leaves are up to 10 cm (4 inches) long, heart-shaped or arrowhead-shaped (unusual for the genus). Flowers are white to pink, borne in spherical to elongated clusters up to 15 mm (0.6 inches) long



Plants that are non-native to North America are indicated by an asterisk (*) placed after the species name.

The Name That Plant web site, www.namethatplant.net/, was used to provide several of the photos and the verbage used in my cheat sheet.

What's in a Name – *Nuttallii*

Penny Longhurst

One of the earliest plants with blue flowers that we see is Old-field Toadflax (*Nuttallanthus Canadensis*) at Glassy Mountain. This year I noticed it growing near my house too. The *Nuttallanthus* and Nuttall's Lobelia (*Lobelia nuttallii*), which we see on Sky Valley Road later in the year, honor Thomas Nuttall, a self-taught naturalist who became a leading American botanist.



Old-field Toadflax (*Nuttallanthus Canadensis*)
Glassy Mountain, Pickens, SC



Nuttall's Lobelia (*Lobelia nuttallii*)
Sky Valley Road, DuPont State
Forest

The epithets *nuttallii* and *nuttallianthus* and the genus *Nuttallanus* are named after Nuttall, who was born in January 1786 and raised in Yorkshire, England. In 1800 he was apprenticed for 7 years to his uncle Jonas who owned a printing business in Liverpool. In his spare time he studied Greek, Latin, and French, and during visits home to Yorkshire developed interests in botany, geology, and mineralogy. In 1808 he sailed from Liverpool to Philadelphia to learn about the flora of the United States. Nuttall found employment as a printer in Philadelphia, but his spare time was primarily focused on botanical pursuits. He met Benjamin Smith Barton, Professor of Botany at the University of Pennsylvania, and from him gained the fundamentals of plant collecting, access to his libraries, lectures, and herbarium collection, and met many prominent botanists, including William Bartram. During the summer of 1809, Nuttall went on two different expeditions financed by Barton. The first was through Delaware, where he returned with 43 specimens, of which 5 were previously undescribed. His second trip took him north to Niagara Falls and Canada, collecting plants, fossils, and minerals. Nuttall was apparently a frugal collector – wherever possible he walked – but it also meant he had more opportunity to browse plants!

In 1810, Nuttall signed a contract with Barton to go on a 2 year trip to the "Northwest Territories". He was supposed to travel to Lake Winnipeg and on into Northern Saskatchewan, Canada, collecting flora, fauna, fossils, studying geology, and researching native Indian culture. When he reached Mackinac Island in Lake Huron, Michigan, he met members of the "Astoria" expedition who were preparing to follow Lewis and Clark's route to the Pacific. A fictional account of that trip was published by Washington Irving in 1836. Nuttall had already realized that travelling alone on foot or by boat in the wilderness was almost impossible and he travelled with the group as they journeyed to St. Louis and then up the Missouri River into the Dakotas,

collecting specimens all along the way. He soon recognized that he could not safely continue alone following Barton's itinerary through such vast, remote territories, due to his frequent attacks of malaria, encounters with hostile Indians, and the imminent start of the 1812 War between the United States and Canada, preventing northward travel. So he returned to St. Louis with his collections and then continued on to New Orleans where he shipped duplicate specimens to Barton and then sailed for England in mid-December 1811. "Trapped" in England while American ports were blockaded, Nuttall made use of his time attending scientific meetings and identifying and classifying his set of the specimens. Fortunately, from the extensive descriptions in his journals, he was able to name and identify plants he was not familiar with once he had access to books, previously published reports, and herbaria. Some of the plants previously collected by the Lewis and Clark expedition (1803 - 1806) had been lost, so those Nuttall collected were among the first to be seen by fellow botanists. He was unable to publish his findings due to a clause in his contract with Barton. However, he planted the seeds he had collected on his uncle's property, sold the plants at John Fraser's nursery in London, and included 89 named species in their 1813 catalog of new North American plants, ensuring that his name was associated with them.

With the war over, Nuttall returned to Philadelphia in the summer of 1815. He probably supported himself by collecting and selling seeds and plants to English gardeners. In the next 2 years he undertook short trips through the Southern states. He visited the Southern Appalachians in September 1816, when he travelled from Cumberland Gap and down the French Broad River to Asheville. He then visited Linville Gorge and possibly Roan Mountain, before turning towards Charleston, SC and the voyage back to Philadelphia. New plants that he found which are included in our database were Long-leaved Houstonia (*Houstonia longifolia*) and Hairy Mock Orange (*Philadelphus hirsutus*), both of which we see on field trips along the Blue Ridge Parkway. On that trip, Nuttall also found Elf Orpine (*Diamorpha smallii*) growing on a rock outcrop (the "Flat-Rock") north of Camden, NC.

Back in Philadelphia, Nuttall became a member of several scientific societies and a founding member and contributor to the scientific publication, the "*Journal*". Botany courses and lectures were becoming increasingly popular, but there were no good textbooks available. In 1818 he published "*The Genera of North American Plants, and a Catalogue of the Species, to the Year 1817*", a 600-page book including 834 genera; many of them new species, such as the Elf Orpine. The book was written in English rather than the usual Latin, was based on his field observations of live plants rather than dried herbarium specimens, and included descriptions of each plant and its habitat. His account of what we now know as Nuttall's Lobelia (named by him *L. gracilis*) states aptly "It is the smallest and most slender species in the United States". John Torrey wrote that the *Genera* was "a work that has contributed more than any other to advance the accurate knowledge of plants in this country". High praise indeed!

In October 1818, Nuttall left Philadelphia for a solo exploration of what was then the Southwest United States; the region around the Arkansas River. He walked from Lancaster to Pittsburgh, where he bought a skiff to travel down the Ohio River and the Mississippi to St. Louis. The trip details are provided in his 1821 book "*A Journal Of Travels Into The Arkansas Territory, During The Year 1819: With Occasional Observations On The Manners Of The Aborigines*." Much of the book describes the ordeals of river travel, avoiding sand bars, driftwood, and other debris, as well as the wonders of the geology of the surroundings. Upstream from Little Rock, his trip fell apart due to encounters with blood-thirsty Indians and near death from illness, starvation, and getting lost (several times). However, Nuttall was successful in collecting hundreds of new plant species native to Texas and Arkansas, as well as birds, insects, minerals, etc. After recovering from his illness he travelled down the Mississippi to New Orleans, returning to Philadelphia in April 1820.

In 1823 Nuttall moved to Cambridge, where he was appointed Curator of the Botanic Garden and Instructor in Natural History at Harvard College. He taught botany at Harvard and at public lectures, wrote a student textbook, "Introduction to Systematic and Physiological Botany", supervised the garden collections, and went botanizing and mineral collecting throughout New England whenever possible. He also went birding with John James Audubon who named the Olive-sided Flycatcher (now *Contopus cooperi*) *Nuttallornis borealis* in his honor. In 1830 Nuttall travelled through Georgia, Alabama, and Western Florida, studying and collecting both birds and plants. Then, in 1832 he published the first volume of "A Manual of the Ornithology of the United States and of Canada", which covered The Land Birds; followed by Volume 2, The Water Birds, in 1834. His descriptions from personal observations included birds passing through or kept as pets at the botanical gardens, as well as those seen and recorded in the field journals of his trips through the Arkansas territories and other states.

However, Nuttall was growing tired of the restrictions of academic life and longed to explore again. In March 1834, he submitted his resignation to the President of Harvard College and joined a group organized by Nathaniel Jarvis Wyeth to travel the Oregon Trail from St. Louis to the lower Columbia River. Nuttall invited his friend, John Kirk Townsend, a naturalist with a special interest in ornithology, to accompany him. This time they travelled from Pittsburgh to St. Louis by steamboat and on April 28, 1834 the group started westward on horseback, passing through Yellowstone and the Tetons and reaching the Snake River, near Pocatello, Idaho, in mid-July. They continued north-west, bypassing the inhospitable landscape now known as Craters of the Moon National Monument, and reaching the Columbia at Walla Walla, Washington in early September. Finally on September 16th, after overcoming near starvation, dehydration, dangerous and/or obscure trails, snow and ice at higher elevations, and turbulent rivers, they arrived at Vancouver, Washington. Both Nuttall and Townsend had been collecting plants, animals, and birds throughout the trip. Near Vancouver Nuttall collected seeds from the spectacular Pacific Dogwood (*Cornus nuttalli*) which has 6 large white petal-like bracts, compared to the 4 smaller bracts found on our local native *C. florida*. In early December Nuttall and Townsend sailed to the Sandwich Islands (Hawaii), arriving in Honolulu on January 4, 1835. During their visit they toured the different islands and met the royal family. They returned to the mainland in April, in time to collect spring flowers and migrating birds. At the end of September, Nuttall returned to Hawaii and then sailed to California, collecting plants and shells in Monterey, Santa Barbara, and San Diego. In San Diego he encountered Richard Henry Dana, a former student from Harvard, who had enlisted as a merchant seaman and was returning to Boston after 2 years. Dana published a book about his experiences in 1840, and details their encounter. Nuttall became a passenger on the Alert, Dana's ship, sailing the southern Pacific, the dangerous iceberg-strewn waters surrounding Cape Horn, and the Atlantic Ocean, finally reaching Boston in September 1836. Townsend returned to Philadelphia in fall 1837 and in 1839 published a book describing their journey. I found this to be the most interesting of the books published during this period, although it includes the disturbing details that Townsend was obsessed with acquiring (i.e. grave-robbing) Native American skulls for his collections. Several western birds and mammals are named after him. Some of the bird specimens he returned with are now very rare due to their extinction. Townsend died in 1851 from exposure to arsenic in the taxidermy preparations he used to preserve his specimens.

Once back in Boston, Nuttall had to organize the many boxes and barrels of specimens he had collected on his trip. He provided bird specimens with descriptions of their habits and distribution, and western plants and trees, including the *Cornus nuttalli*, to be used as backgrounds for Audubon's "Birds of America" book. Publications and reports on the different shells, animals, and insects he had collected and given to collaborators soon followed. Nuttall began to identify and characterize his plants for publication and continued to give public lectures. He agreed to describe hundreds of his new plants to be included in Torrey and Gray's "Flora of North America". Volume 1 was published in parts between 1838 and 1840. However, probably due to disagreements

about Torrey and Gray's editing of his writing, as well as personal animosity between Nuttall and Gray, he did not contribute to the remaining volumes. In 1841 Nuttall started work on a 3-volume appendix to François-André Michaux's "North American Sylva." He wrote the text and supervised the drawings, adding western trees and shrubs and others not previously described. Many biographies state that he mentions visiting Roan Mountain in the Sylva, but I could not find any reference to it. He also revised his Ornithology book, including the new western birds that he and Townsend had found on their trip.

His uncle Jonas had become a wealthy man, living on a large property near Liverpool. When he died in 1837, the estate was left to Nuttall on the death of his aunt Frances. A stipulation of the will was that once he inherited he could not be absent from England for more than 3 months in any calendar year. Frances died in 1841 and Nuttall sailed for England at the end of December of that year. He would return to the United States only once, between October 1847 and March 1848. Naturally, in England he continued his interests in botany; growing and identifying plants grown from his seed collections, writing reports on his unpublished plants, improving his land and orchards, and developing a special interest in orchids and rhododendrons. He sent his nephew to the Himalayas to collect unique rhododendron and orchid seeds and specimens, which he propagated at his home, published descriptions of the new species, and sold through a London nursery to enthusiastic buyers. One of the finest of these, with particularly large flowers, was named *Rhododendron nuttallii*. Nuttall died on September 10, 1859 from chronic bronchitis. His herbarium containing 5,759 species, many not reported, and over 3,000 minerals from his collection are now in the British Museum. He was the first naturalist to visit Arkansas, Michigan, Oklahoma, Wisconsin, Wyoming, and other unexplored parts of the US between central New York and the Pacific Ocean. His legacy is as a pioneer in the collection and identification of the plants of the Western United States.

The [International Plant Name Index](#) (IPNI) lists 3,122 names published by Nuttall, including 72 different species of *Oenothera* (and I have trouble sorting out the 10 species in our plant list)! Most of the plants collected and named by Nuttall are from the Midwestern and Western states. However, Weakley lists 19 native species in the Southern and Mid-Atlantic States attributed to Nuttall. Those found in our database are Nuttall's Tick Trefoil (*Desmodium nuttallii*), Nuttall's Lobelia (*Lobelia nuttallii*), Old-field Toadflax (*Nuttallanthus canadensis*), Nuttall's Milkwort (*Polygala nuttallii*), and Heartleaf Hedge Nettle (listed as *Stachys nuttallii* by Weakley, but the ITIS accepted name is *Stachys cordata*). Wild Lupine (*Lupinus perennis*) was previously named *Lupinus nuttallii*. Also, the USDA plants profile shows that Nuttall's Bush Clover (*Lespedeza X nuttallii*), a hybrid of *L. hirta* and *L. violacea*, grows in our area.

The Mountain Cottontail (*Sylvilagus nuttallii*), Nuttall's Woodpecker (*Picoides nuttallii*), the Yellow-billed Magpie (*Pica nuttalli*), and the Common Poorwill (*Phalaenoptilus nuttallii*) are named after Nuttall. In his honor, the Nuttall Ornithological Club was founded in Cambridge in 1873 as America's first ornithological society and publisher of the nation's first bird journal. The World Register of Marine Species lists 44 marine genera and species named with the epithet *nuttalli*. The mineral *Nuttallite* is named after Nuttall.

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Editor's Note: The three books authored by Nuttall and mentioned in this article are available through Google Books for free in PDF form. They are scanned copies of the original volumes. The following are links to those free copies.

["The Genera of North American Plants, and a Catalogue of the Species, to the Year 1817" - Vol 1](#)

["The Genera of North American Plants, and a Catalogue of the Species, to the Year 1817" - Vol 2](#)

["Introduction to Systematic and Physiological Botany"](#)

["A Journal Of Travels Into The Arkansas Territory, During The Year 1819: With Occasional Observations On The Manners Of The Aborigines."](#)

["A Manual of the Ornithology of the United States and of Canada" - Land Birds](#)

["A Manual of the Ornithology of the United States and Canada" - Water Birds](#)

Milkweed and Monarchs

by Gayle Mercurio

Anticipating the arrival of monarch butterflies and hoping to be helpful with food for the long migration or for the in-between generations, we planted milkweed. The first year it was Butterfly Weed (*Asclepias tuberosa*) and Swamp Milkweed (*Asclepias incarnata*). The Butterfly Weed grew and bloomed beautifully and continues to do so. The Swamp Milkweed grew but took two years to bloom.



The second year we bought five small Poke Milkweed plants (*Asclepias exaltata*). They grew and looked so healthy we were excited. Much to our delight, one day we found three monarch butterfly caterpillars on the little plants. The next day when we went to check on them, there were no plants! The caterpillars had eaten them to the ground and they never grew back.



The third spring we bought a bunch of Common Milkweeds (*Asclepias syriaca*) and a neighbor heard our sad story and gave us some of hers. *Asclepias syriaca* grew and bloomed in abundance in the garden with no mishaps. The flowers attracted all kinds of insects, spiders and butterflies but no monarchs. Finally, the milkweeds bloomed themselves out and the plants withered.



Here it is the middle of September, and VOILA, monarch butterflies are flying through our flower gardens. The milkweed we planted for them is long gone but they're making do with Evening Primrose (*Oenothera fruticosa*), a native plant, and non native Zinnias. So in an unusual way, we grew milkweed and fed the monarchs. Mission accomplished.



Evening Primrose

Monarch Butterfly (male) on Zinnia

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Actaea podocarpa

By Lucy Prim

A couple of years ago in late summer when the club was walking along Bear Pen Gap, we saw some Black Cohosh blooming. I was quite surprised to see them blooming so late in the year. These plants looked unusual too, though I wasn't quite sure why—they just looked a little different, a little fluffier perhaps. I took some pictures, and when I got home I looked up *Actaea* in Weakley's Flora and was amazed to learn we have two species of Black Cohosh here in our mountains, *Actaea racemosa*, the one we usually see, and another one called *Actaea podocarpa* that blooms later in the year! This other one is rare and is endemic to the Southern and Central Appalachians. According to Weakley's Flora, this one is most closely related to *Actaea laciniata* of Oregon and Washington!

To be sure this Cohosh was the more rare one, I drove up to Bear Pen Gap a few days later and studied the plants closely. The differences mentioned in Weakley's Flora matched these plants perfectly! I felt sure I was right—we had found *Actaea podocarpa*!

Here are the features that can help us identify this Mountain Black Cohosh:

There is a very prominent groove in the stem of the lower leaf petioles. This groove is very easy to see, as you can tell in this picture.



Actaea racemosa usually has one single sessile pistil associated with each flower, but with *Actaea podocarpa* each flower has 3 or more stalked pistils, or carpels.

Here is a picture of the flowers. The multiple carpels are almost impossible to see beneath the jumble of stamens. An easy way to tell is to gently touch a flower with your fingertip. If multiple carpels are present, you can feel them poking up rigidly from their stalks just beneath the myriad of fluffy stamens that cluster around them.



Here is a picture taken when the many fluffy stamens have fallen off and it is easy to see the multiple carpels, each on a stalk.



This picture shows the plump sickle-shaped fruit.



It is quite fun to look for *Actaea podocarpa* this time of year. The wispy spires of fluffy white flowers gleaming out from a shadowy bank are a lovely sight. Now that I can identify them easily, I've found lots of them at Bear Pen Gap, and a few at Skinny Dip too. I have even found one blooming on the trail beside the Davidson River. Since they are normally found at higher elevations, this was quite a surprise!

If you think you might have found one, gently touch a flower. Can you feel several carpels right below your finger tip? If so, you can feel lucky because you have found our very special Mountain Cohosh!

SHORTIA

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The mission of the Club is to identify and study native plants and their habitats and to advocate the protection of biodiversity in our natural world. Membership is open to all. Individual/family memberships are \$15. Send dues to Western Carolina Botanical Club, 351 Cheestoonaya Way, Brevard, NC 28712

SHORTIA

NEWSLETTER OF THE

WESTERN CAROLINA BOTANICAL CLUB



Shortia galacifolia

Oconee Bells

Winter 2020

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MEMBER NEWS

Field Trip Cancellations: Occasionally, field trips must be canceled or changed either for weather conditions or other reasons such as road closings. Such changes are sent out by email to all members by 7 AM the day of the field trip. If you do not have email access, please call the leader, co-leader, or recorder (whose phone numbers are listed on the schedule) to be sure that the walk is going to go as planned. Indoor programs are canceled when Henderson County Schools are closed (see <http://www.hendersoncountypublicschoolsnc.org>) but NOT necessarily canceled because of the delayed opening.

For any change of address, email or telephone number, please send an email to wcbotanicalclub@gmail.com.

Our webpage is located at <http://wcbotanicalclub.org>

NOTE: All club activities are canceled until July 2021 due to Covid-19 concerns. All full year (\$15) dues for 2020 will be applied to 2021, so memberships will be automatically renewed for 2021 (assuming there are activities in 2021).

As a reminder, here is the information that all of you should have received concerning the plan for 2021.

Covid-19 numbers continue to rise. There doesn't seem to be an end in sight. The Scheduling Team discussed the virus, the requirement to wear masks, social distancing, and the vaccine. Scheduling for 2021 does not look good. Therefore, the club plan for the first six months are as follows:

1. Cancel all official activities/walks for the period January 1 through June 30, 2021, and evaluate in May.
2. Send members the sheet with walks for the past 5 years, and the proposed Spring schedule, as was done in 2020.
3. Post the current checklists and members can print what they need.

President's Message

Gayle Mercurio

A couple of years ago I undertook the daunting task of identifying the native and non-native plants in the WCBC plant database. The database contains over 2000 species of plants that have been identified on our walks over the past 20+ years. After many interruptions and re-starts, I have finally completed the task and a link to the list is on the [WCBC website](#). The list is meant to be helpful to indicate which plants are native to our area. Nature has placed these plants here for a purpose and for our enjoyment. The list is not meant to be written in stone but rather a reference to be corrected, changed, and added to when necessary.

In addition to identifying native and non-native plants, plants are also identified as being predominantly in the mountains and plants that are threatened, endangered or rare. Several websites were used for reference before marking each plant. The ones marked “predominantly found in the mountains” does not mean they cannot be found in other areas. However, if an abundance was found elsewhere, it was not marked as “predominantly in the mountains”.

Included are threatened and endangered indicators that can change and vary according to different references. Endangered plants are important and our club does not disturb or disclose the location of these protected plants. Rare plants are also noted.

All this information helps us to be better informed and good stewards of our amazingly unique environment.

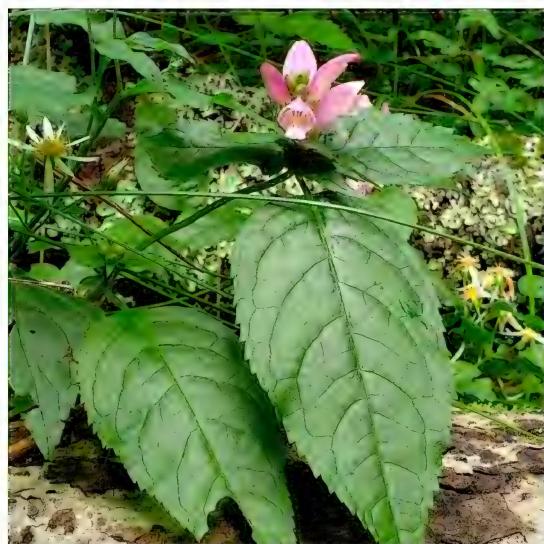
What's in a Name – *Lyonia*

Penny Longhurst

Maleberry (*Lyonia ligustrina*) is a plant with interesting features in all seasons. In this area it's mostly found along the Blue Ridge Parkway. There's a nice plant across from Rough Butt Bald Overlook, and on the trail to Sam Knob Meadow there are a couple of plants near the top of the steps. Late summer and early fall is Turtlehead time! We see Pink Turtleheads (*Chelone lyonii*) on the Bear Pen Gap trail to Wet Camp Gap. They differ from the two other Turtlehead species found in this area, Red (*C. obliqua*) and White (*C. alba*), by having a much longer leaf petiole, larger leaves, and, at least theoretically, the long non-fertile filament or staminode that protrudes from between the lips is white, sometimes with a pink tip. Both plants are named after John Lyon, a Scottish plant collector who was responsible for introducing many North American plants suitable for growing in temperate climates to Europe.



Maleberry (*Lyonia ligustrina*) fruit



Pink Turtlehead (*Chelone lyonii*)

Nuttall, in his 1818 Genera, named the genus *Lyonia* "to commemorate the late Mr. John Lyon, an indefatigable collector of North American plants, who fell victim to a dangerous epidemic amongst those savage and romantic mountains which had so often been the theatre of his labors". *Chelone lyonii* was named by Frederick Pursh, a German-born botanist who had worked with Lyon in Philadelphia. *Chelone lyonii* is first described in Pursh's *Flora americae septentrionalis*, published in 1814.

Little is known of Lyon's early life, other than he was born in Scotland, possibly near Dundee. Fortunately his journal exists and was transcribed by Joseph and Nesta Ewan. It covers the period from November 1799 to his death in September 1814. Interestingly many of the entries describe only the weather (either too hot or too rainy), the state of his accommodations (generally not good), the condition of the roads (also not good), or the scenery (he liked it)! Prior to the start of his journal he travelled to the United States and by 1785 was probably working in Philadelphia as a gardener at Woodlands, the 600-acre estate of William Hamilton, an aspiring botanist and avid plant collector. Hamilton hired numerous nurserymen and botanists to stock his gardens with plants from all over the world. Woodlands stretched from the Schuylkill River to Market Street on the north and 42nd Street on the west, including what is now the University City area (the University of Pennsylvania campus

didn't move to its current location until 1872). Hamilton died in 1813 and his heirs sold most of the property. The Woodlands Cemetery Company of Philadelphia purchased 92 acres, including the mansion, and created a rural cemetery where many of the original trees still remain. It's located behind the Philadelphia VA, on the south side of Woodland Avenue, extending down towards the University of the Sciences (formerly Philadelphia College of Pharmacy). I parked along Woodland Avenue many times while working in Philadelphia and sadly didn't ever look to see what was over there behind the trees.

Lyon was sent on many collecting trips by Hamilton, venturing to the mountains of western Pennsylvania in 1799 in search of oil nut (Buffalo Nut, *Pyrularia pubera*), which was used as lamp oil by early settlers. In 1802 he followed the Bartram trail through Georgia into Florida and, after a collecting trip to the south in 1803, probably left Hamilton's employment to collect and sell plants freelance. His typical route was to travel through the Alleghenies, southern Appalachians, Tennessee, across to the Georgia coast, and up the Saint Johns River in Florida. At intervals he would ship his plants to a friend's nursery in Philadelphia. He then returned, collected them, travelled with them to London, sold them at public auction or plant sales, and returned to the USA to start again. His 1806 plant sale netted £1,487. After paying his expenses of £564 he had a net gain of £923. In May 1812, he advertised 400 species of plants for sale and made a profit of £613.

Like many other naturalist explorers before him, his journeys were not all easy. He had many problems with horses; they got lost (or stolen), were often sick, and sometimes died unexpectedly. In early September 1803 he wrote "during the greater part of this day experienced a very singular sensation throughout my whole body the effects of poison imbibed from gathering seeds of *Rhus pumila*" (Poison sumac, now *Rhus michauxii*). The next day he wrote "Last night and all day a braking out all over me commenced with considerable fever. Much alarmed." He spent the rest of September and early October "At Asheville in one continuous blister from poison sumac". Ouch! In August 1803 while attending a treaty meeting near Cowetta, Georgia (where the US government was trying to persuade the Creek Indian chiefs to part with 5,000 acres of land between the Oconee and Ocmulgee Rivers), Lyon wrote "While out on a botanical ramble this afternoon ... I had the misfortune to get bitten by a mad dog". Lyon treated his 3 bite punctures with hot irons and caustic alkali, but the effects of the bites would plague him for the rest of his life.

Like many of the Southern Appalachian naturalist explorers and plant collectors, Lyon stayed often with "General Pickens", at the uppermost settlement of South Carolina at the border of Cherokee country". This was Andrew Pickens, who rose to the rank of Brigadier General fighting the Cherokee and British in the American Revolution and later became a member of the United States House of Representatives. In 1787 Pickens built a house he named Hopewell on the banks of the Keowee (now Seneca) River (the Keowee River is submerged under Lake Hartwell). The Hopewell plantation still exists and is now owned and maintained by Clemson University. Around 1802, General Pickens sold Hopewell, moved to the site of the former Cherokee Village, Tamassee, and built his final home called the "Red House". We pass very close to the location of the Red House when we drive SC 11 to Station Cove. The city of Pickens and Pickens County, South Carolina are named after him, as is Fort Pickens in Florida, Pickens County, Alabama, Pickens County, Georgia, and the Andrew Pickens Ranger District of the Francis Marion and Sumter National Forests. In his journal, André Michaux recorded staying at Hopewell in June 1787 and December 1778. Lyon's journal has several entries documenting stays with Pickens. In August 1807 he was taken to "Oconee Station Falls" (Station Cove) which he described as "a curious waterfall" with "a most picturesk appearance". The following day they visited another waterfall "on the creek above his house", which Lyon considered like the first waterfall, "most picturesque and curious." This was probably Lee Falls, SC. "No very uncommon plants was observed hereabouts". Too bad he wasn't there in the spring!

Another host for naturalists passing through upstate South Carolina was "General Anderson on Seneca River South Carolina". This was probably Robert Anderson, who had moved to South Carolina to settle near his friend from Virginia, General Andrew Pickens. Anderson fought under Pickens in several battles during the Revolutionary War and subsequently served in the South Carolina House of Representatives. His home, Westville, was located across from Andrew Pickens' home, Hopewell, on the west side of the Seneca River. It was flooded when Lake Hartwell was created. Anderson, South Carolina, Anderson County, South Carolina, and the ghost town of Andersonville, also inundated by Lake Hartwell, are named for him. Lyon recorded staying with General Anderson in July 1804 and 1807, and then a long stay from November 3 – December 5, 1808, while he recovered from his continued leg inflammation resulting from the dog bite. Both Pickens and Anderson must have been very accommodating hosts.

Among other locations, Lyon recorded a trip to Roan Mountain in September 1808. It started to rain while his group was on the mountain and they were lost in the mist for several hours. Luckily they managed to find their way back to their horses, because the storm continued for 3 days and he wrote that, otherwise, they and the horses would probably have died! In September 1809 he returned to Roan and "Collected a variety of curious plants" returning with "a valuable collection". This time the weather was fine and he "enjoyed a most extensive and curious prospect". Sadly he would have missed seeing the Gray's Lilies. However, he did collect Catawba Rhododendron and Flame Azalea elsewhere.

Lyon spent a lot of time in Asheville. Silas McDowell, a student at Newton Academy in Asheville, first met Lyon there in 1812 and, developing an interest in botany and geology, spent the next 2 summers exploring the Blue Ridge Mountains with him. McDowell went on to become Clerk of the Court for Macon County and later owned a farm near Franklin in the Cullasaja River valley where he grew apples and cultivated Rhododendrons. He became acquainted with Moses Ashley Curtis who instructed him in methods of collecting plants for him and other botanists: "It will be well for you to collect as many plants as you can (no matter how common the species may be, or how ugly), for a Botanist desires to know every plant"! In later years McDowell became a writer on the topics of thermal belts and viticulture.

In July 1814, Lyon reached Nashville, TN before being taken ill with what Nuttall speculated was probably typhoid fever, although Sondley thinks he was suffering from tuberculosis. Lyon continued on to Asheville where he died at the Eagle Hotel on September 13th or 14th, 1814, attended by McDowell and another friend, James Johnston, a local blacksmith. Although initially buried elsewhere in Asheville, his body was interred and moved to the Riverside Cemetery in the Montford District sometime after it opened in 1855. Five types of plants named for their discoverer were planted at his grave in 1964. These were the Pink Turtlehead, Sand Myrtle (*Leiophyllum lyonii* now *Kalmia buxifolia*), Maleberry, Staggerbush (*Lyonia mariana*), and Carolina Rose (*Rosa lyonii* now *Rosa carolina* ssp. *carolina*). His gravestone, thought to be the oldest inscribed gravestone in western North Carolina, was sent by friends in Scotland. He is also memorialized in the Howff Cemetery in central Dundee. However, the Wikipedia entry for "John Lyon (botanist)" states that he is buried in an unmarked grave in Nashville, NC, which is near Raleigh. No references are given for this statement, and it seems unlikely since it was not in an area where Lyon would likely have been collecting, would be a great distance from the locations mentioned in the last entries of his diary, and conflicts with the recollections of people who reported being present at his death.

It has been reported that Lyon introduced 31 American plants into horticulture. Joseph and Nesta Ewan list over 50 horticultural plants and new species attributed to Lyon. Those found in our database include: Wolfsbane (*Aconitum reclinatum*), Blue Star (*Amsonia tabernaemontana*), Poke Milkweed (*Asclepias exaltata*), Glade Fern (*Diplazium pycnocarpon*), Sparse-lobed Grape Fern (*Botrychium biternatum*), Dissected Grape Fern (*Botrychium dissectum*), Sweet Shrub (*Calycanthus floridus*), Pink Turtlehead (*Chelone lyoni*), Greater

Tickseed (*Coreopsis major*), Umbrella Leaf (*Diphylleia cymosa*), Burning Bush (*Euonymus atropurpureus*), Striped Gentian (*Gentiana villosa*), Witch Hazel (*Hamamelis virginiana*), Twinleaf (*Jeffersonia diphylla*), Bigleaf Magnolia (*Magnolia macrophylla*), Narrowleaf Sundrops (*Oenothera fruticosa* ssp. *glaucia*), Passion Flower (*Passiflora incarnata*), Mountain Fetterbush (*Pieris floribunda*), Yellow Mandarin (*Prosartes lanuginosa*), Flame Azalea (*Rhododendron calendulaceum*), Bloodroot (*Sanguinaria canadensis*), Featherbells (*Stenanthium gramineum*), Zigzag Spiderwort (*Tradescantia subaspera*), Farkleberry (*Vaccinium arboreum*), and Yucca (*Yucca sp.*).

My favorite of the plants attributed to Lyon is the evergreen Mountain Fetterbush (*Pieris floribunda*, formerly *Andromeda floribunda*), which he collected on Pilot Mountain in September 1807. Driving the Blue Ridge Parkway near Graveyard Fields when it is blooming is a wonderful sight. Nuttall wrote “Discovered and so named by the late Mr. John Lyon. A very elegant species”. I think that sums it up perfectly.

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Plants we Love to Hate - Ragweed (*Ambrosia*)

Penny Longhurst

I'm fortunate. I don't think I'm allergic to Ragweed, but I know plenty of people who suffer from hay fever each fall when it starts to bloom. The genus *Ambrosia* was named by Carl Linnaeus in 1753. He presumably didn't know that it was allergenic, since the name is derived from the Greek for "food for the gods".

According to Weakley (2020), six different species of *Ambrosia* are found in the Southeastern United States, although only five of them are currently recognized by ITIS. Common Ragweed (*Ambrosia artemisiifolia*) and Giant Ragweed (*Ambrosia trifida*), both weedy native annuals, are the only species found in our database. The specific epithet, *artemisiifolia*, means having leaves that are highly dissected, resembling those of *Artemisia* (for example, Mugwort; *Artemisia vulgaris**), while *trifida* refers to the leaves of the much taller plant (it can grow to 15 feet!) being usually three-lobed. Both *A. artemisiifolia* and *A. trifida* can trigger ragweed allergies.



Common Ragweed (*Ambrosia artemisiifolia*)



Giant Ragweed (*Ambrosia trifida*)

Each year between August and October, ragweed species produce huge amounts of tiny light pollen that stimulate an allergic response in sensitive people. Ragweed plants can release up to one billion grains of pollen per year. Ragweed pollen drifts long distances; it has been detected 400 miles out to sea – can you imagine being out on the ocean and developing hay fever! Ragweed allergy season now starts earlier and ends later because the plants live longer, probably due to the increased temperatures and carbon dioxide levels associated with climate change. Goldenrod species (*Solidago*) are sometimes blamed for fall allergies because goldenrods bloom at the same time as ragweed. However, goldenrod pollen is heavier and sticky and spreads only by insect transfer, not wind.

Ragweed allergy symptoms, typical of hay-fever, usually include itchy or puffy eyes, itchy nose and throat, postnasal drip, sneezing, and a stuffy or runny nose. If you have severe allergies, ragweed might trigger asthma, chronic sinusitis, congestion, and headaches. People with ragweed allergies may also develop "oral allergy syndrome" when they eat certain foods during pollen season. Eating banana, cucumber, lettuce, mango, some melons, milk, mint, and zucchini can cause an itchy mouth or throat in sensitive people because the proteins in these foods are similar to ragweed pollen and cross-react with their sensitized immune system.

Diagnosis of ragweed allergy may be done with a skin prick test where a drop of fluid containing ragweed pollen is placed on the skin which is then scratched through the drop. Sensitivity to ragweed will quickly cause

redness, itching, and swelling. Management of ragweed allergies starts by avoiding contact with pollen. Cutting back the plants before they bloom will decrease pollen formation, but avoid touching the plant, which may cause contact dermatitis. Pollen levels can be monitored at the [National Allergy Bureau website](#), so that you can decide whether it's safe to go outdoors or you should stay inside with the windows closed. Pollen counts are usually highest in the mornings or early afternoon, so go out later in the day. Avoid getting pollen on your clothing or pets and shower and wash your hair after being outside, so you don't bring pollen into the house. Mild symptoms can be treated with decongestants and antihistamines. More severe symptoms may require steroids and/or immunotherapy, either by injection or tablets that are placed under the tongue.

Plants that are non-native to North America are indicated by an asterisk () placed after the species name.

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Viburnums of our North Carolina Mountains

By Lucy Prim

Winter is here! The bare branches in the woods, the drooping Rhododendron leaves, the squirrels dashing about trying to find their buried acorns, make me feel delighted to be warm and cozy in the house. One of my favorite things to do on an occasion like this is to page on-line through Alan Weakley's new edition of his marvelous Flora, searching the little maps for unfamiliar species that grow in our area. Engaging in this amusing activity a couple of weeks ago, I noticed that several Viburnum species I had never heard of were growing in this area. How intriguing!

Another website that is immensely useful when it comes to studying "little maps" is "[Vascular Plants of North Carolina](#)." This website also has little maps, but these, instead of showing general regions, show the North Carolina counties in which plants have been identified. I could see from these maps, and the accompanying text, that the unfamiliar Viburnums were ones we were not likely to find here in our mountains because they mostly grow at lower elevations, down in the foothills or the Piedmont. We usually schedule a few walks down there in the spring, so we might find these on one of those outings.

I made a page of Viburnums showing the different species on a mountain side, appearing in the order we would expect to find them according to elevation (except for *V. acerifolium* which grows widespread here in our mountains as well as at lower elevations.). The four Viburnums that grow at lower elevations are at the bottom of the page. Alan Weakley's Flora, (and therefore "Name that Plant" and "Vascular Plants of North Carolina"), use different names from ITIS for some of the Viburnums, so to make this clear I wrote Weakley's names in yellow.

There is a great deal that could be written about Viburnums, such as the splits in the "Viburnum Dentatum Complex" and how Viburnums do not always key out cleanly, and how Viburnums tend to lose pubescence as the year progresses and so on. But for us Botany Club members, knowing where we are likely to find a species growing according to elevation should be a big help, and may save us from getting too perplexed about whether a leaf is shiny or not so shiny!

Viburnums

of our North Carolina Mountains



Lantanaoides primarily over 3200' elevation
witch hobble

nudum var *cassinoides* (*V. cassinoides*)
wild raisin (Shawnee Haw)
common in higher elevations

acetifolium widespread in mountains and down
maple leaf viburnum into Piedmont

dentatum var *dentatum* (*V. carolinianum*)
Carolina arrow wood
Underside is densely pubescent

Four Viburnums of lower elevations

nudum var *nudum* (*V. nudum*)
Possum Haw



leaf margins entire,
sometimes undulating
Rare in low mountains

prunifolium
Black Haw



petioles and veins below
glabrous or slightly scurfy
Thin leaves, common in piedmont, rare to absent
in mountains

recognitum
Smooth Arrow wood



Turn the leaf over and
look for hairs on veins
and vein axils
Rare in the foothills and mountains

rufidulum
Rusty Black Haw



look for red dots on the petioles
and lower surface of leaf
Thick leaves, very rare in mountains

Missing Plants

We have plants in our database that we've never recorded. Maybe if we knew what they looked like we could find them.

Blue Bottles (*Muscari neglectum*)

LEAVES:

Simple

Basal (plant scapose, leaf tips usually withered at flowering)

FLOWER:

Spring

Blue/Violet

Radially symmetrical

6 tepals, connate most of their length

6 stamens

Superior ovary

Flowers in a compact raceme

FRUIT:

Spring/Summer

Capsule



Cylindrical blue flowers under 1/4" long, nodding on short pedicels. Corolla ellipsoid-ovoid, distinctly longer than wide, the lobes erect



Fruits are distinctly angled 3-chambered capsules with 2 seeds per chamber

A Non-native, it is cultivated as an ornamental, is persistent and naturalized in lawns, old fields, suburban woodlands, and disturbed areas. It is rare in the North Carolina Mountains but has been seen in Polk County as well as Oconee and Greenville Counties in South Carolina. We might find it on our Upstate walks in the late spring.

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SHORTIA

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